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THE "GAMES" WAR THEORISTS PLAY

by

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As an Advanced Research Project

A paper submitted to the director of the Advanced Research Department in the Center for Naval Warfare Studies in partial satisfaction of the requirements for the Master of Arts Degree in National Security and Strategic Studies.

The contents of this paper reflect my own personal views and are not necessarily endorsed by the Naval War College or the Department of the Navy.

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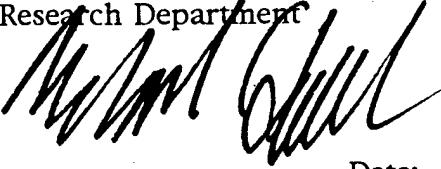
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ABSTRACT

THE "GAMES" WAR THEORISTS PLAY

As American policy makers seek a more sophisticated understanding of non-western regions of the world, strategy formulation becomes a challenge as America encounters new cultures and nations. The quest for methods that can better inform our assessments of our own strategic choices, the strategies of potential opponents, and the interaction of these opposing strategies with ours should be extensive, comprehensive, and urgent.

The anticipated value of this study arises from its application of a novel method to understanding philosophies of war and the formulation of strategies which have their roots in these views of warfare. This study uses popular games of strategy to think about war. The board game "Diplomacy," chess, poker, wei-ch'i, and a modified version of chess serve as a heuristic device, a "lens," to view the theories of Sun Tzu, Jomini, Clausewitz, Mao, and Thomas Schelling. A game approach enhances the analysis because it provides a systematic basis of comparison among competing theories and strategies. This paper argues that certain games reflect certain cultural roots, biases, and strategic preferences. The revealing strategic preferences that flow from the game analysis lend themselves suggestively to some of the characteristics of different strategic cultures.

Finally, the study proposes a research design that uses a game of strategy to further explore whether certain game proclivities can provide insights to the study of strategic culture. It does this by "gaming" the players of different types of games against each other. At this juncture, the conclusions are preliminary ones and the study outlines a proposal for empirical research to test the potential this approach has of informing decision-makers about the dynamics of certain types of strategies that they may encounter in the future.

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EXECUTIVE SUMMARY

As American policy makers seek a more sophisticated understanding of a changing Europe and non-western regions, Sun Tzu's often quoted, "Know the enemy, know yourself; your victory will never be endangered...," takes on great relevancy to strategic and operational military planners and decision-makers.* The fundamental issue that this paper examines is whether national strategies are the immediate descendants of philosophies of war. To explore this further, this study proposes an analogic approach that uses popular games of strategy. Although the conclusions of this study are tentative, pending the future research it proposes, this method of thinking about war using games is one with which we can view in discerning retrospect prominent strategic thinkers of war and one where we can inform our assessments in advance of future opponents' strategies in war.

Research Method

The anticipated value of this study arises from its application of a novel method to understanding philosophies of war and the formulation of strategies which have their roots in these views of warfare. Essentially the purpose of this project was to examine the usefulness of thinking about war in games--popular games of strategy. The author's intent is to use this study as the basis for a proposal for more comprehensive and empirical research.

This study began with extensive research on the study of games, on specific games of strategy, game theory, the history of military wargaming, general

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* Sun Tzu, <u>The Art of War</u>, Translated and with an Introduction by Samuel Griffith (New York: Oxford University Press, 1971), 129.

wargame design, military history, strategic and operational theory, the expanding literature on strategic culture, and the writings of prominent theorists of war. The source list at the end of this paper provides a point of departure for further research in these areas and on issues raised by this study.

To analyze the results of this research and to provide a framework to refine this author's thinking as it matured, a "case study" method was devised. Five prominent theorists of war and five popular games of strategy serve as the basis of this paper and as the testing ground for the use of the game as an analogic method in thinking about philosophies of war. After developing this approach, the resulting analysis informed a thought experiment that placed a hypothetical game player of one game (with one philosophy of war and with certain strategic preferences and experiences) against a hypothetical player of another game (with a different philosophy and set of experiences and preferences). A proposed methodology for actual empirical experimentation based on this thought experiment followed. Since the project, to this point, presented a preliminary analysis and an expansive set of hypotheses, it ends with numerous suggestions and implications for future research.

Project Format

This Advanced Research Project is an eleven-part, unclassified study designed from the outset to stimulate a new way of thinking about war and strategy-making.

Part I: INTRODUCTION. This part of the paper presents the purpose of the study along with a brief overview of the long relationship war and games have had over time. This paper is not devoted to the study of game theory or modern

computer-assisted wargames. It examines the use of popular games of strategy. After a definition of these types of games, the study proposes the use of these games in two distinct, but related ways. First, this study suggests that these games can be used as a heuristic device, a <u>method</u>, for developing a better understanding and for a deeper analysis of specific theories of war. The basic assumption is that strategies of war flow from philosophies of war. Second, this study develops a research <u>methodology</u> that incorporates popular games of strategy to explore whether certain game proclivities can provide insights to the study of strategic culture.

Part II: ON GAMES OF STRATEGY—AS A METHOD AND A METHODOLOGY. This part of the paper develops in more detail for the reader the idea, presented in Part I, of the game as a method and later as the basis of a research methodology. It begins by arguing that war is not a game. A discussion of the limits of using a game as an analogic device follows. Despite cautions about using games in this way, a further discussion suggests that the application of insights, that the structure and strategy of certain games of strategy provide, can establish a valuable mechanism with which to view war and strategy formulation. The study then introduces the reader to the five theorists and selects an appropriate and unique game "lens" for each. The five games and five theorists provide the "case studies" for the exploration of this analytical method. After this part of the paper is outlined, the reader is introduced to the conceptual analogic experiment that will follow the case studies and pit the player of one type of game of strategy against the player of another in a third "neutral" game.

Part III: THE GAMES. Part III briefly presents and compares each of the five games used in the study. The games of chess, "disaster" chess, wei-ch'i, poker, and "Diplomacy" are examined using the following parameters: structure/rules;

information; uncertainty; risk; and deception. A table at the end of this section summarizes the discussion of Part III.

Parts IV to VIII examine the five different, prominent theorists of war with the assistance of the five specific games mentioned above. Part IV explores the ideas of Sun Tzu with the assistance of the board game "Diplomacy." Part V revisits Jominian thinking with the aid of the game of chess. Part VI analyzes Clausewitzian theory through the lens of a poker game. In Part VII, Mao's ideas are examined with the assistance of the Chinese game of wei-ch'i. In Part VIII, Thomas Schelling's theories become more understandable with the help of his own "disaster" chess game. Throughout these parts of the study, comparisons and contrasts are made among the theorists and the various games. Each of these sections describes a slightly different implication for insights to strategic culture. Numerous examples from military and foreign relations history illustrate points and support findings in this process of analysis. A table at the end of Part VIII summarizes significant elements of these game and theorist case studies.

Part IX: GAMING THE DIFFERENT GAMES--A PROPOSED METHODOLOGY. This section outlines a "gedanken" experiment that games a hypothetical chess player against a hypothetical wei-ch'i player on a neutral playing field, the board game of "Diplomacy." This section raises more questions then it answers, but it provides a conceptualization of the application and usefulness of the previous analysis of the theorists and suggests hypotheses that could form the basis of strategic formulations.

Part X: IMPLICATIONS FOR FUTURE RESEARCH. This part of the study outlines considerations that would allow actual experimentation along the conceptual lines suggested in this paper. Additionally, this section suggests possible hypotheses for games between some of the other types of game players encountered in this

study. It also proposes the application of the preliminary approach developed in this paper to other games and to other strategic cultures.

Part XI: CONCLUSIONS. This last section highlights some of the general and significant preliminary findings and shares expectations as well as offers cautions for the future.

I. INTRODUCTION

> The situation is analogous to a game of chess. The atomic queens may
> never be brought into play, they may never actually take one of the
> opponent's pieces. But the position of the atomic queens may still
> have a decisive bearing on which side can safely advance a limited-
> war bishop or even a cold-war pawn. The advance of a cold war-
> pawn may even disclose a check of the opponent's king by a well
> positioned atomic queen.
>
> Paul H. Nitze, Foreign Affairs (1956)[1]

The very idea that war, especially in the age of weapons of mass destruction, can be compared to a "game" is a contentious point from the outset. The fact remains, however, that a relationship between war and popular games of strategy has existed for a very long time. Despite this long association, there are potentially useful and analytical aspects to these popular games that have not been widely recognized or developed. This study will identify and examine some of these underdeveloped uses of popular games of strategy.

The dynamic interaction of human opponents in warfare has had a great deal to do with war's relationship with certain games. Ever since words existed for fighting and playing, humans have seen some sort of connection between war and a game.[2] Evidence suggests that societies at higher levels of cultural complexity have possessed games of strategy as well as games of physical skill and chance.[3] Although games can have "play" characteristics, such as recreation, amusement and cultural affirmation, games differ from mere play when they have other deliberate uses--analysis and diagnosis, education, training, experimentation and research. It is these latter applications of games that are more appropriate to the focus of this study.

In this study, we are most interested in "games of strategy," because of their potential application to the operational and strategic levels of war. They are games with at least the first three of four specific characteristics. First, in all

strategy games, opposing players have choice of action. Second, players are interdependent on the decisions and choices made by the "other" players. Third, strategy games have varied degrees of incomplete information about the opponent's choices/moves. Finally, some will have different levels of chance. Chess and poker are games of strategy. Most common forms of the card game, "solitaire," although games, are not games of strategy as defined here. In solitaire, voluntary moves belong to only one human player. A person can play the game on probability theory alone and has no interaction with a player who has chosen opposing moves or "strategies."[4] ,

In the more recent past, studies of probabilities and strategy have led to the analytical constructs and theoretical guidance provided by the mathematical sophistication of "game theory." Game theory is a mathematical theory of decision-making by participants in a competitive environment.[5] Although fundamental aspects of this theory were formulated in the 1920s, it was not until 1944 when John von Neumann and Oskar Morgenstern published their findings that game theory received much attention.[6] Initially conceived to apply to "game-like" problems in economics (price competition between two sellers), nuclear strategists and international relations theorists discussed, used, and expanded game theory's applications during the Cold War.[7]

In the 1960s, Thomas C. Schelling built on the work of the early game theorists and proposed that war was a "process," a combination of competition and tacit cooperation.[8] In the world of nuclear weapons, he argued that warfare was essentially violent bargaining.[9] In some of his most influential writing, Schelling used the popular games of chess and "chicken" to illustrate how concepts of "signalling," uncertainty, and risk could be manipulated in deterrence, crises, and limited war.[10]

Today, many modern armed forces conduct mathematically-based, computer-assisted "war games" to explore the suitability of plans, training, doctrine, and equipment and to attain a better understanding of enemy reactions and actions.11 These games have an ancestral link to some popular games of strategy.

War games simulate political and military conflict without involving actual military forces. By using rules, data, and procedures they are designed to depict an actual or hypothetical real-life situation.12 A war game, from its earliest forms to its current sophisticated counterparts, is not just any type of war model or simulation. Human opponents must influence the game's flow of events with the decisions they make during the game's flow.13 There is some debate about and no exact record of the first use of games for some explicit military purpose, but there are archeological evidence and accounts in the ethnological literature of war games among some tribal groups.14 Although it is not possible to determine which particular game was the first war game, most experts in this area would agree with Nicholas Palmer's assessment that "chess and 'go' [also called wei-ch'i, a popular Chinese game of strategy] must both be candidates for spiritual ancestry."15

What follows is an attempt to explore the uses of popular games of strategy in two distinct but related ways--first as a method and then as a methodology.

First, games of strategy can provide an analogic method. A game becomes a heuristic device for developing a better understanding and for a deeper analysis of specific theories of war. This study begins by using five popular games of strategy as a method to explain five prominent theorists' ideas about war and military strategy. In this capacity, a specific choice of a game provides insights on three analytical levels. First, it constitutes a consistent and logical point of view that clarifies and joins in a coherent fashion a classic theorist's strategic

ideas. An analysis using a game underscores some of the conceptual extent and limits of a theorist's perspectives and arguments. Second, the "lens" of a game enhances our analysis because it provides a basis for comparison among competing theories and strategies. In a sense, a game focus acts as a translation code between different conceptions of war that underlie strategies in fighting war. Finally, this paper argues that certain games reflect certain cultural roots, biases and strategic preferences. These characteristics engender strategic proclivities that may exist among ruling elites or larger national and/or regional groups in addition to the theorists we examine. ›

The second major use of a game in this study is as a suggested research methodology. This study proposes a research design that uses a game of strategy to explore whether certain game proclivities can provide insights to the study of strategic culture.16 The game can be used as an attempt to isolate effects of such a culture by "gaming" the players of different types of games against each other. Ultimately this has the potential of informing decision-makers about the dynamics of certain strategies that they may encounter in the future.

II. ON GAMES OF STRATEGY–AS A METHOD AND A METHODOLOGY

> You don't see something until you have the right metaphor
> to let you perceive it.
> > Robert Shaw17

It is important to stress what this paper is not about and what it does not claim. First, it does not argue that war is simply a game. War is not the ultimate game that Martin Van Creveld describes in his provocative book, The Transformation of War.18 There are some aspects of war, when isolated from war's totality and

complexity, that can be "game-like." In reality, however, war has a much greater complexity than any game. Every game, no matter what its sophistication, is an approximation of reality and has fewer variables than war. War, although it has approached a standard stylistic formula in some eras, has few if any of the rules that govern games. Yet, even the stylistic formula, the "rules" in a certain period, can change unexpectedly during the actual practice/course of a war.[19] Napoleon's armies and his operational methods, which evolved from the changes that the French Revolution made possible, led to an unexpected change in warfare. The blitzkrieg machine that Nazi Germany unveiled at the beginning of World War II was another historical example of this change in the rules.

There are some other important limits to using a game as a method of analysis about war. Games are synthetic creations and with their inevitable simplification can bear only some abstract and limited resemblance to conflict situations in real life.[20] In war, when lives are on the line, there is in the ultimate sense no real rules--only interests. In games, "moves" are usually sequential, whereas in war they are usually carried out simultaneously. Players can usually play games over and over, but in war losers may not compete again. Unlike games, not only new rules but new objectives, new capabilities, and new players can emerge during the course of a war. Persian political and financial support, late in the protracted conflict, were critical to Sparta's final success against Athens in the Second or Great Peloponnesian War (431-404 B.C.)[21] U.S. interventions in the First and Second World Wars further highlight the effects of a new player during the course of a war.

Unlike most games, in war, especially with complex large-scale modern battles, not only your opponent's moves but the exact execution of your own may remain unknown to you. John Connell's analysis of the Battle of Sidi Rezegh, the

first phase of Operation Crusader in North Africa in 1941, suggests it is impossible to fully understand the conduct of such battles in retrospect, even with the benefit of hindsight.22 Today, the U.S. military explores whether information technology will provide "dominant battlespace awareness" to lift the "fog" of war that Carl von Clausewitz wrote about over one hundred and fifty years ago.23 Varying levels of imperfect information create uncertainty in games and in war, but because of the multiplicity of variables and the attempts by opponents to further obscure information that uncertainty is compounded in war.

Finally, the mention of a few written passages that refer to a game in a theorist's work or the choice of a game as a method of analysis, do not stand for conclusive evidence that a conscious employment of a game strategy takes place in actual decision-making in war. The conclusions of this study are only suggestive thoughts about war and strategy. The games do not offer an exact predictive science, for in the end, war is by definition an unpredictable and reciprocal human interaction.

Despite these limitations and cautions in an approach that uses games, application of the insights, that the structure and strategy of certain games provide, develops a valuable mechanism. Even if only as the tentative one suggested here, it is one by which we can view in retrospect the conceptions and strategies of war made by prominent theorists and one where we can inform our assessments in advance of future opponents' strategies in war. The caution, however, remains: we must keep in mind that a game is being used as an analogic model of reality and is not the reality itself.

As an analogic model, a game has valuable illustrative and explanatory functions, even if only serving a heuristic purpose. It provides a tool for structuring and resolving a conflict without the overwhelming complexity of

historical reality. Anatol Rapoport has written that "parlor" games of strategy have some value in this regard:

> A parlor game represents a limited portion of life in which it is possible (in principle) to list all the things that can happen. The actual number of possible events is usually beyond comprehension, even in simple games, but only a fraction of these events is normally of interest. So it is not too much of an exaggeration to say that in a parlor game all eventualities can (in principle) be taken into account. The idealized player of such a game can be supposed to be "omniscient"... The limits of what can happen are set by the rules of the game....24

A game can also act as a mechanism for avoiding certain difficulties inherent in cross-cultural strategic analysis. It does this by providing a systematic and consistent point of view to analyze decision-making by allowing you to consider systematically strategic options. This, in turn, can give us a better appreciation of risk analysis. A game perspective sustains a system of analogic thinking that can generate relevant propositions and can describe, explicate, and interpret strategic and tactical interactions. Building on processes developed in war games, a game, although tentative, can help determine and generalize the internal structure and the logic of doctrine. Finally, games allow you to test plans and strategies to examine opponent reaction--a way of getting into an opponent's mind.

This study uses and develops five theorist "cases." Sun Tzu, the Chinese general of the fifth or sixth century B.C. and the reputed author of The Art of War, is the first.25 In what some consider to be the best single book on war, Sun Tzu emphasized the psychological dominance of the enemy and not his physical destruction by force (although he wrote that there was limited usefulness to that, too).26 Because of his emphasis, which is a departure from most of the classic western theorists who wrote about war, Sun Tzu put great weight on superior knowledge of the enemy, use of deception or unconventional means, and

establishing conditions where the enemy is essentially defeated before the first combat engagement. By introducing the board game, "Diplomacy," we can construct a model of his theory of war from Sun Tzu's perspective.27 The rules, principles, and structures of this modern and popular game of strategy generate propositions and explicate some key strategic interactions contemplated by Sun Tzu. Insights gained about diplomacy, deception, strategies and alliances can inform our analysis of current strategic interactions with Asian/"Eastern" nations.

Baron Antoine-Henri de Jomini was the most widely read western strategist of the nineteenth century. Jomini's discussions and definitions of "base of operations," "decisive points," and "lines of operation," to name a few, still inform some aspects of military theory and doctrine today, especially in defining a theater of operations.28 In an introduction to his most widely read work, The Art of War, Jomini cited the game of chess as a metaphor in his explanation of the essence of his theory.29 Military strategists and international relations analysts have compared war and relations among states as a rational competitive process similar to the game of chess.30 Expanding the "lens" of chess beyond Jomini's initial citation reveals the illustrative and explanatory functions of such a heuristic device. Not only does it enhance understanding of Jomini but it also suggests the character of the proclivities of others, such as the former Soviet Union, who would be inclined to favor chess as a possible analogy to war.

Third, no western theorist is better known today than Carl von Clausewitz. His classic, magnum opus, On War, is one of the most widely recognized works of western literature. Of the many metaphors that Clausewitz uses in On War, his comparison of war to a game of cards is the most illuminating.31 Clausewitz' estimation of uncertainty, risk, reciprocal action, his concepts of "friction," the

culminating point," and his assessment of intelligence in war become more understandable and interconnected when we apply the logical and consistent point of view of a high stake gambler's card game--in this study the game of poker. Here too, this study proposes that preferences for the structure and style of competition in a card game may reveal strategic tendencies in crises and war by others.

Mao Zedong's military writings about revolutionary war, collected in The Selected Writings of Mao Tse-tung, and his historical decision-making have inspired debates inside and outside of China.32 Tpday, the relative importance of Hans Delbrück's theoretical conceptions of an attrition strategy (highlighted by Mao's protracted regular-guerrilla operations) or a strategy of annihilation (approached by Mao's conventional force operations at the end of the Chinese Civil War) is of interest in understanding Chinese strategic concepts.33 Also, the value of Mao's military ideas to China as an emerging modern power remains another issue of disagreement. Mao used the 4,000 year-old Chinese game of wei-ch'i (pronounced way-chee, also called "go" in the west) as an analogy in citing some of his strategic ideas.34 A focus of analysis that uses the game of wei-ch'i provides an invaluable mechanism for understanding Mao's approach, for informing our assessment of the applicability of his theories today, and for cross-cultural comparisons to other strategic theories.35

In many ways, Thomas C. Schelling's work marked the theoretical high point of the new school of American strategists that emerged in the first twenty-five years of the cold war.36 In his two most influential books, The Strategy of Conflict and Arms and Influence, Schelling made creative and intellectually provocative contributions to the theories of deterrence, limited war, and arms control that have relevance today.37 Schelling made unique modifications to the game of

chess, discussed later in this study, to introduce and explain concepts of risk and uncertainty in limited wars, deterrence and crises.

After the analysis outlined above, this study poses a "gaming" research methodology that pits the players of one type of game against the players of another. The hypothesis is that this process can lead to an appreciation of an opponent's strategic culture. This study presents it as a conceptual analogic experiment--a "gedanken" experiment, if you will.

In the growing debate about the explanatory power of "strategic culture," there has been a lack of methodological rigor to'any empirical approach.38 The very term "strategic culture" has had a broad range of definitions ever since Jack Snyder first introduced the term in 1977 to strategic debates.39 In the context of this current study, Alastair Johnston's definition works well: the different predominant strategic preferences a state has that are "rooted in the early or formative experiences of the state, and are influenced to some degree by the philosophical, political, cultural, and cognitive characteristics of the state and its elites."40

The "gaming" research experiment, outlined in more detail later in this study, is a hypothetical experiment to help assess Ken Booth's argument that "strategic theories have their roots in philosophies of war, which are invariably ethnocentric." Also, whether it is valid that "national strategies are the immediate descendants of philosophies of war."41 Gaming is an established method that is process oriented. The qualitative issues that are raised in the gaming actions will furnish a plausible or "reasonable" approach to strategic choice. The use of a game in this manner and its analysis constitute a methodology that is not a "test" in the sense of an absolute standard to be proven or not, but instead is a way to examine the qualities of strategies. Thus, it is not intended to be a stand alone

methodology for prediction. Discussed in some detail later in this study, players of certain games will be pitted against players of another game in a popular and "neutral" game of strategy. This methodology proposes methods such as surveys before play, observations during play, and surveys after to assess players' decision-making and strategic choices.

III. THE GAMES

This study uses and examines five games: chess, Thomas Schelling's modified version of chess, a poker card game, wei-ch'i (go), and the board game, "Diplomacy." Before we can apply them to the theorists mentioned earlier, it is important to summarize their basic structure, rules, and prevailing winning strategies. A summary that does complete justice to the complexities and subtleties of these games is well beyond the scope of this study. The focus here, however, is to give the reader a basic familiarity with these games and to highlight the key parameters we will use to compare them. We will consider these same parameters again because they form a substantial part of our analysis of the five theorists. We will assess each game in the following categories: basic structure and rules; information; uncertainty; deception; and level of risk.

At this point it is important to discuss what we mean in this study by "uncertainty." Uncertainty in a game may come from a limitation on foresight, as we will see with the game of chess. It may come from a chance element that can be determined by a probability. It can also appear because there is imperfect information on the part of one player about what his opponent will do. It may result from a combination of chance and imperfect knowledge.

Chess is a two-person, highly structured game with relatively rigid rules.[42]

In chess, players make highly structured moves on a game board that consists of 8 x 8 alternating black and white geometric squares. The sixteen playing pieces on each side move in different but set and limited ways. Each piece has a mutually agreed value and each side begins with an equal capability--the same number and kind of playing pieces.43

It is a game that uses symmetrical "forces" with equal capabilities. In chess, players begin with all playing pieces arrayed in a standard way in complete view of their opponent. Each player remains fully informed of his opponent's resources (his pieces) as the game unfolds.44 Game experts categorize chess as a perfect information game which lends itself to almost "perfect intelligence" in a military analogy. Players in the game must manage only limited probability. There is a low level of uncertainty in chess that stems from the opponent's intentions more than from the capabilities of resources or factors of chance. The various pieces have the ultimate capture objective of the opponent's king. The game reflects a proclivity for winning the key tactical battle with reward for pieces "killed" or "captured." The emphasis is on maximum destruction of enemy forces not control of territory except for the advantage a position gives to one's military force. In chess, players fight for early control of the center of the board for this opens up more options for the player that dominates the center.45

Considering the general categories for comparison listed above, chess is a highly structured game. It approaches a perfect information game--only the opponent's intentions are unknown and need to be deduced. Thus, the game has little uncertainty and does not naturally lend itself to deception, although expert players can devise moves and tactics to disguise some of their intent. Finally, the level of chance with a commensurate risk is very low. Failure is a function of the mistakes made in one's moves.

In the 1960s, Thomas Schelling devised modifications to the game of chess to better explain the needs of opponents in a competitive environment who need to bargain their way to an outcome, especially in the Cold War context of nuclear weapons and limited wars.46 To illustrate his perception of the reality of the bargaining process and to demonstrate the problems connected with risk, Schelling added a fourth outcome to the game of chess--"disaster."47

In this disaster version of the game of chess, this new outcome to the game is equally disadvantageous to both players and is worse than merely losing the game. The new rules state that disaster occurs if one player has moved a knight or the queen across the center line and when the other player also moves his queen or a knight across the center line into the opponent's half. The game is then ended and a heavy fine is levied on both players. Schelling did not stop with this change and added one more. Although disaster threatens both players, the respondent to the risk initiation move is confronted with a choice that in itself is not risky. There is no probability of disaster for the respondent. In his next move(s), he has the certainty of avoiding disaster or the certainty of causing it to occur. To "add uncertainty," Schelling added a referee's roll of a dice to the game when both players cross the center line with their queen or a knight.48 If the number one comes up, the game ends in disaster. If another number appears, play goes on and the dice is rolled at the beginning of every set of moves as long as the key pieces remain across the center line.

In Schelling's disaster version of chess, the game remains highly structured. The availability of information, however, has now been altered slightly. The opponent's intentions remain unknown and his capabilities are still known. What has changed is the introduction of a new set of probabilities with the roll of the dice. This adds a low level of uncertainty with the chance in a roll of the dice,

but the probabilities of the dice outcomes are known by both players. The introduction of the modifications does increase the level of risk for the players. Individual players, depending on their willingness to accept risk, will play accordingly.

Poker can be a multi-player game and has less structure than chess.49 Since poker today has countless playing variations and playing tactics, it would take a large book to cover all the strategic aspects of these games. For our purposes, it is only necessary to outline some of the key generic characteristics of a poker game. Like many games of strategy it possesses choice, interdependence, imperfect information, and chance.

Poker, unlike chess, reflects a theory of conflict and competition that encompasses asymmetrical force capabilities. The random distribution of the cards according to the luck of the deal creates the initial asymmetrical capabilities and the situation of chance from which to proceed. Whereas the first move in chess offers 20 choices, poker with a 52-card deck permits the possibility of 2,598,960 possible five-card poker hands.50 All or a significant amount of cards are held out of sight of opposing players—thus, cards are not a perfect information game. Thus, we can say that there is a great degree of uncertainty in the game of poker. There is a high degree of uncertainty--both in capabilities and intentions. Players' proclivities, personalities, luck, mistakes, risk-taking, strategies of bluffing with the corollary of "calling the bluff," and the magnitude of betting, create incidents that are impossible to foresee. In a gambler's card game such as poker, each player alone knows the secret of his or her own hand. Each player can assess probabilities and make hunches about the others' hands and how they will play their cards. The closest opposing players come to knowing the most about their opponent's hand is when the money talks. The basic strategy

is to bet high on a high hand and mostly low on a low hand, "but with occasional irregularly distributed bluffs."51

Given our discussion above, poker is less rigidly structured than chess. Because of the chance in the deal, the lack of information about an opponent's resources and lack of information about his intent, poker has a high level of uncertainty. Because the rules encourage bluffing (deception), the probabilities in the game become less certain and, therefore, the game has a high level of risk for the players.

Go, or wei-ch'i, an ancient Chinese board game of strategy and skill, is played throughout Asia and is considered by most Asian game experts to surpass chess as the world's greatest strategic skill game.52 The game has few and relatively simple rules. It usually takes longer than the average chess game and could be considered a more protracted game. The board takes the form of a simple, square grid, usually formed from nineteen horizontal and nineteen vertical lines. A board of this size contains 361 intersections. The game is played with 181 black and 180 white pieces called "men" or "stones." These are pieces of equal strength. They gain power when used in mass to encircle opponent's pieces. "Wei," the Chinese morpheme, signifies "encirclement."53 Wei-ch'i is almost a complete information game, but the game begins with an empty board. Players alternate turns placing pieces upon unoccupied intersections. Forces can appear anywhere in varying concentrations.

There are two related objectives in the game: capturing opponent's pieces by encirclement and acquiring the maximum territorial control. Destruction or capture of an opponent's stones is secondary to the object of controlling the most territory with the smallest investment in pieces. Unlike chess, the pieces do not have a single capture objective, but an overall objective that is made up of many

captures. One captures a hostile stone or group of stones by playing all his stones on all directly adjacent intersections. A player controls territory, which is a connected set of empty intersections, by surrounding them tightly with his stones so that attack from within or from without would not reduce his control.54

The game is over when both players decide there are no plays left on the board that can benefit either player. When the game ends, each player scores the number of points (intersections of two lines) situated in his territory, minus the number of stones he has lost to his opponent.55 "Victory" is relative in wei-ch'i. Both sides frequently have a significant amount of territory to their credit at the end of the game. It is not the more pure zero-sum game that chess is. The best strategy is to claim open areas of the board and, as the board fills, to attack unsupported stones of your adversary.56 Expert players in wei-ch'i, unlike chess players, seek control of the edges of the board and usually leave the final battles for the center of the board to the later parts of the game. Control of the edges protects a flank from encirclement and allows time to build up strength before venturing into the disputed center of the board.

This brief discussion of wei-ch'i suggests that the game is more structured than poker but less so than chess. The availability of information approaches chess, but because of the empty board at the game's beginning and a player's choice of placement anywhere on the board there is less initial information and a greater degree of uncertainty. The level of risk is fairly similar to standard chess. There is a low to medium level of deception because of the unique characteristic of the game that encourages a player to encircle the encircling opponent.

"Diplomacy" is not your more common modern board wargame. It is a multi-player game with a highly abstract combat system. The military and naval rules for movement and engagement are relatively simple. Complete "armies" and

"fleets," all of equal weight, move around big provinces on a map that encompasses all of Europe, Turkey, and North Africa in 1900.57 All the major country players start more or less with equal strength with their military capabilities arrayed on the board in clear view of all the players at the start of play.

Success in this game depends on the protection of one's own country and the acquisition of provinces with "supply centers" in other countries. The occupation of certain provinces allows a player to build military units on a one-for-one basis. A player wins with the occupation of more than half the supply centers on the board. Although in more typical board war games, one can win on pure "military" skill, Nicholas Palmer, in his comprehensive study of these games, comments appropriately that in "Diplomacy," "it is impossible to win against competent opposition without political success in gaining allies."58 Prior to every turn there is a period of play devoted to diplomacy. The special feature of this game is attributable to the explicit invitation in its rules to conduct negotiations with other players, form and break alliances, make and break promises, double-cross--"anything goes."59

"Diplomacy" has a "medium" level of structure. Because it is a multi-player game and emphasizes shifting alliances and secret negotiations between and among players, it encourages a high level of deception. Accordingly, the accuracy and availability of information on opponent's intent and allied support is suspect. This increases game uncertainty to the medium to high range and introduces a medium level of risk.

The table on the following page summarizes the five games using the parameters discussed above.60

TABLE 1.

GAME COMPARISON

		GAMES			
	CHESS	MODIFIED CHESS	CARDS	WEI-CH'I	DIPLOMACY
Structure (Rules)	-High	-High	-Low	-Medium	-Medium
Uncertainty	-Low	-Medium	-High	-Medium	-Medium to High
Information	-High	-Medium to High	-Low to Medium	-Medium	-Low to Medium
Deception	-Low	-Low	-High	-Medium	-High
Level of Risk	-Low	-Medium	-High	-Low to Medium	-Medium to High

IV. PLAYING "DIPLOMACY" WITH SUN TZU

Although there is still some question about the authority of the sources and the veracity of the historical record, it has become customary to attribute the first stress on military exercises and analysis to the Chinese general, Sun Tzu.61 Some scholars have gone so far as to credit the Chinese with the invention of simulating battle on a board and suggesting that Sun Tzu based some of his theories and teaching on principles of game play from wei-ch'i.62 This study resists the conventional inclination to conduct an analysis of Sun Tzu with wei-ch'i and instead uses the board game, "Diplomacy." "Diplomacy" lends itself to highlighting significant aspects of Sun Tzu's theory that make it significantly different from other theories of war. This board game highlights some suggestive considerations about diplomacy, deception, strategies and alliances and can inform our analysis of current strategic interactions with Asian/"Eastern" nations.

The general game environment of "Diplomacy" closely parallels the strategic environment that formed the context for Sun Tzu's theories. Sun Tzu was a Chinese general who fought and wrote about warfare within a single culture. China in his era was a land of politically weak and separate states that ran great risks with any resort to force. Thus, Sun Tzu opened <u>The Art of War</u> by declaring the need for the serious study of war. Sun Tzu wrote, "War is a matter of vital importance to the State; the province of life or death; the road to survival or ruin."63

Although the European states that form the game environment for "Diplomacy" are politically stronger and more industrially developed than Sun Tzu's Chinese states, they create a similar multipolar environment that is

characterized by shifting alliances and a balance of power, a balance in which states share a fairly symmetrical distribution of power. Isolation and/or a miscalculation in war in this environment, could easily lead to the economic bankruptcy and social disintegration of a state. Sun Tzu advocated devising strategies with the fundamental and long-term interests of the state in mind, not just strategies of expediency. For these reasons, Sun Tzu cautions against "protracted war" and operations of attrition that might result from besieging a large walled city.[64] With this context in mind, it is not so surprising that Sun Tzu would value a victory that emphasizes the highest levels of strategic and political considerations and where "those skilled in war subdue the enemy's army without battle."[65] Unlike most theorists of war, Sun Tzu gave more attention to actions and concerns that precede the actual outbreak of war.

In subduing the enemy, Sun Tzu determined that there were four general strategies, listed in order of preference: (1) generally, the best policy was to attack the enemy's strategy; (2) next, was to disrupt his alliances; (3) the next best was to attack the enemy's army in the field; and (4) the least preferable was to attack his cities.[66] As discussed in a previous section of this paper, Sun Tzu did not put military force at the center of his approach to warfare. There were two fundamental reasons for this. First, as we have discussed above, the limits of force reflected the conditions of warfare in China at the time. Second, Sun Tzu was convinced that victory in war was not so much a result of the physical and material destruction of the enemy as it was the result of psychologically unsettling him. To achieve this psychological goal, Sun Tzu did not rule out force but he emphasized the acquisition of superior knowledge about the enemy, declared that "all warfare is based on deception," and encouraged the use of unconventional means.[67]

Sun Tzu would be quick to recognize that the structure and game environment of "Diplomacy" were well-suited to his theories. Scholars of Chinese military history credit Sun Tzu as one of the first persons in ancient China who believed and wrote that diplomacy was one of the keys to the outcome of war.[68] For him, diplomacy was an excellent means for attaining victory with the four general strategies listed above since it enhanced the practice of psychologically unsettling the enemy. "Diplomacy's" encouragement of deception and of shifting alliances make the game a very suitable model for Sun Tzu's approach to war.

In the board game, one of the best ways to collect information on a potential enemy is to begin negotiations with him. Information about the force capabilities of each of the players is in clear view, but their intent is not and their ability to bring the capability of an ally to bear is not. Allies conducting negotiations with your enemy provide sources to verify information or to feed "disinformation." Sun Tzu's positive attitude toward intelligence reflects his fundamentally rational and calculated approach to war. For Sun Tzu, timely and careful use of intelligence makes it possible to predict the outcome in warfare, "I will be able to forecast which side will be victorious and which defeated."[69] In real world negotiations with a nation, Sun Tzu would be quick to point out the importance of a spy network and a system of informants to gain information about the enemy. The entire last section of his work is dedicated to the "employment of secret agents."[70]

Sun Tzu would appreciate the usefulness of diplomatic negotiations to preempt or to "attack the enemy's strategy." Observations and discussions during the conduct of talks and negotiations, in the game and in reality, can provide warnings that allow a state to negate conditions upon which the enemy's plans are predicated. Sun Tzu believed that the enemy could be expected to

abandon his plans. In one of the running commentaries that appear throughout Sun Tzu's text, a commander kills an opponent's envoy for insolence when he recognizes that this staff officer was his adversary's "plans officer," his enemy's "heart and guts, his intimate counselor." This clever action, according to the commentators, results in the surrender of a city without combat.71 Arthur Waldron cites the German invasion of France in 1940 as another example of what Sun Tzu meant by attacking the enemy's strategy.72 The German main effort came through the Ardennes while French and British forces continued to deploy farther north to meet the incorrectly anticipated German main effort through Belgium.

The second preferred method of winning for Sun Tzu, "to disrupt his alliances," is clearly reflected in the game play of "Diplomacy." A state can enter into an alliance in the game and in reality for a number of reasons. An alliance can compensate for a state's weakness or for bettering the odds against another state or an opposing alliance. Alliances can protect a flank or province in one geographical theater while a state focuses upon another. States can also use alliances to isolate an enemy to rapidly defeat him. Prussian Minister-President Otto von Bismarck successfully isolated Prussia's opponents with diplomatic maneuvers in the Austro-Prussian War (1866) and Franco-Prussian War (1870-1871).73 Because of his emphasis on psychological means, Sun Tzu saw alliance systems as a way to affect the enemy's will. Chinese military analysts continue to view Stalin's secret non-aggression pact in 1939 with Hitler, before Hitler's invasion of Poland, as "wise and desirable from a military strategic point of view." The Chinese criticize Stalin for not using the time he gained to prepare properly for the eventual confrontation with Germany.74

Sun Tzu makes a major contribution to the theory of war when he discusses

the interplay of diplomacy and military forces in the field--talking and fighting. This suggests Sun Tzu's understanding of the role diplomacy had in his third preferred method of winning, "attacking his army." Negotiators from the United States were often frustrated by Chinese and North Korean methods in the Korean War and North Vietnamese efforts in the War in Vietnam that combined talking at the peace tables with continued fighting.75 Such action supports Sun Tzu's perceptions of war, because Sun Tzu saw diplomacy and fighting not as separate entities but integral parts of a unity when thinking about war. In the game or in preparation for real war, successful and clever diplomacy can deceive an opponent in the deployment and readiness of his army or fleet. Here, deception can leave a state's military force in various states of unpreparedness. It can assist in deceiving an opponent as to where and when to deploy his forces. Such accomplishments can lead to the collapse of the opponent's state, or to a disadvantageous attack by the invaded state's ill-positioned army to dislodge a foe, or to a fait accompli, or to a bargaining prize of seized territory for favorable war termination conditions. Sun Tzu spent a sizeable portion of his study discussing the meaning of diplomatic signals and behavior on military preparation and intent.76

Sun Tzu's emphasis on the central role of deception requires clarification here. Sun Tzu found deception always appropriate. When a force was strong it saved lives and brought victory more effectively or sooner--"when capable, feign incapacity...pretend inferiority."77 When a force found itself weaker, deception was a combat multiplier and allowed the weaker force to concentrate its efforts more effectively. We should not think that deception is the sole servant of an Asian way of war. History is replete with examples of deception across many cultures. The ancient Greeks employed the Trojan Horse. The British in the early

years of the Second World War, primarily because of the disadvantageous position they found themselves in against the Germans, relied heavily on deception operations.78 What does seem to be an historical and general pattern, however, is that forces that see themselves the strongest do not emphasize deception. The Chinese abandoned any use of military deception toward the close of the Korean War and were engaged in costly frontal assaults that were reminiscent of British efforts in the First World War. Because they felt vulnerable and at a disadvantage as they had in 1948 and 1956, Israel took complex efforts to build strategic deception into their plan for the Six-Day Arab-Israeli War of 1967.79 However, as Michael Handel points out, apparently flushed with these successes, they did not consider its use in the Yom Kippur War of 1973 while the Syrians and Egyptians did.80

The theories of Sun Tzu and the board game, "Diplomacy," can help to build an interpretative model of current Asia-Pacific regional relations. The multi-state players in this environment approach key aspects of the multi-state context of "Diplomacy" and Sun Tzu's era. Although they are not of one culture, there are enough nuclear-armed adversaries that have interests in the region (U.S./Russia/China/North Korea?) that they must deal with possible limits to the application of maximum, mobilized, and industrialized force. Additionally, ruling regimes in nations of this region that are experiencing tremendous economic growth. As a result, they are now also beginning to experience greater economic and better quality of life expectations from their populations at home. They may be more fearful of political or economic bankruptcy in protracted strategies of attrition. Strategic decision-makers may have to look very closely at ways of attaining "victory" that precede the outbreak of war. When war does break out, they may very well search for ways to limit the fighting.

The diversity of this region is tremendous and any generalized element of strategic culture would have exceptions or would naturally apply in different degrees to different nations. The work of Desmond Ball has indicated that there are some general tendencies that appear to be supported by the model we have briefly considered here.81 Most nations in the region generally tend to be pragmatic in their foreign relations, place more emphasis than the West on broader and multidimensional strategic approaches, and appear to prefer a series of bilateral relations over multilateral approaches to security planning and conflict resolution.82 These tendencies can easily find expression in the theories of Sun Tzu and the game play of "Diplomacy."

V. PLAYING CHESS WITH JOMINI

> [Searching for the "secret" of Frederick the Great's and Napoleon's early successes,] I perceived that this secret consisted in the very simple maneuver of carrying the bulk of his forces upon a single wing of the hostile army...which gave me the idea that by applying, through strategy, to the whole chess-table [underscore mine] of a war this same principle...we should have the key to all the science of war.
>
> Jomini, "The Present Theory of War and Its Utility"83

Although Jomini does not explicitly develop this brief analogy to chess much further in his writings, chess provides a suitable parallel construct for much of his theory about war.84 Chess assumes a highly structured game with rigid rules. The chess-board and playing pieces constitute a complete and self-contained environment with very little of the uncertainty that plagues war in reality. Chess, as we discussed earlier, has only limited game probability and fundamentally leaves us only with the assessment of the opponent's intentions. Jomini defined "strategy" as "the art of making war upon the map, and comprehends the whole theater of operations."85 In Jomini's theory about war,

the map and chess board are interchangeable. Jomini set out to impose a structured environment on war that, if not by outright intent, was very similar to the characteristics of the game of chess.

Although Jomini saw war as an art and appreciated the moral and political factors of war, he set out to analyze war independent of them.86 Jomini acknowledged but did little to integrate political considerations into his theory.87 Jomini decided to focus on "principles" that he believed would underlie all the military operations of war. He thought that these were historically derived and could be learned.88 He purposely chose a reductionist, or as John Shy describes it a "psuedoscientific," method to cut through some of war's conflicting complexities and provide some useful concepts that would impose some order on the process of thinking about and planning for war.89 Jomini became extremely popular in his time among military professionals for his work's simplifying and prescriptive approach.

Jomini wanted to provide a chess-like elegance and simplicity to military operations. For example, he wrote:

> The front of operations, being the space which separates the two armies and upon which they may fight is ordinarily parallel to the base of operations. It...ought to be perpendicular to the principal line of operations.... 90

The physical boundaries and limits of the chess board delineate a theater of operations. In the alternating black and white squares of chess, a player positions pieces and uses the squares as guides for distinct geometric and directional moves. This provides an analogy to Jomini's preference to discuss approaches to the enemy with geometric constructs. Among Jomini's many constructs in his design of a theater of operations, he defined his "lines of operations" as lines that would equate to avenues of approach shaped by actual

terrain as well as the best angle of direction for maneuver in relation to an opponent's position or forces.91

Chess corresponds comfortably to Jomini's symmetrical view of opposing forces. Pieces are essentially abstract but can easily represent the military arms and the military organizations with which Jomini was accustomed to in his era. European armies were outfitted with essentially the same equipment capabilities and were organized in the primary military arms of infantry, artillery, cavalry, and engineering/fortification. Success in chess and in Jomini's conception of war comes with the appropriate choice of combinations of pieces (forces) and their movement structured by the distinct rules of the game.

Jomini's conception of the military value of surprise is a product of his experiences and is well-reflected in the chess metaphor. As we have discussed, chess players begin with all playing pieces in complete view of their opponent; each player remains fully informed of his opponent's resources as the game unfolds. Unlike Sun Tzu who believed that surprise could be achieved and was worth the effort, Jomini concluded in his studies that surprise on the higher strategic and operational levels of war was extremely rare to achieve. Furthermore, it was not worth the effort if it endangered the primary principle of concentrating forces at the decisive point.92 Deception, then, became relatively unimportant and he dedicated little priority to it in his theory. This was a reflection of his own experience in warfare during the Napoleonic period. The limited weapon ranges and the slow rates of movement of mass formations were the significant technological and determining characteristics for Jomini's era.93 Jomini wrote that a surprise attack was "less brilliant than a great strategic combination which renders victory certain even before the battle is fought."94

If we cultivate an appreciation of the preferences for chess as a game of

strategy we can come to a limited appreciation of an opponent's strategic culture. Chess is a zero-sum game with a clear definition of rules with a limited number of out-comes (win/lose/draw). There is a reward for every playing piece "destroyed" in an engagement. This reflects the importance of battle in war, with its physical and material destruction. In addition to highlighting differences between tactics and strategy, the process of interaction, and offensive and defensive plays, many value chess because it demonstrates as Hannes Adomeit observes, "the comforting notion that it is always the better, more skillful player who wins."[95] Force is critical, but it is not just brute force and chance does not enter the equation. (Except for the coin toss before the game begins to determine who plays white or black--thus, who gets to go first!)

This leads us to the intriguing case of "Soviet Chess." A good deal of research has suggested a generalization of "Soviet style chess."[96] Since the Bolshevik revolution, literature in the Former Soviet Union depicted chess as ultimately a "struggle"--a "battle" of intellect and wills. Chess for many years was a cultural stick with which to beat the capitalists. Card games were considered beneath the dignity of the new Soviet citizen because card games were seen as mere gambling and too fatalistic. Chess literature in the former Soviet Union stressed that the attack must be assumed--victory depended on keeping or wresting initiative from an opponent. In the defense, players were to strive for the counteroffensive.[97]

The most unique aspect of this national school of chess was the belief that each decision-making opponent battles the other, but both have limited and vulnerable decision-making capacities. Victory went to the one that better taxed and strained the other.[98] Soviets stressed elements of familiarity and psychological preparedness to overcome this vulnerability--given limited information, making decisions under battle conditions and against time pressure.

Their belief was that aspects of the game would become more familiar to the Soviet player than his opponent.99 Although they have had to play more conservative positional chess against opponents, Soviet chess masters preferred unique combinations of attacking pieces over position play.100 They often spoke of preserving or gaining an advantage in tempo. Soviet chess masters have displayed a distaste for extended "passive defense" and prefer to increase their risk taking to play for victory rather than a draw.

Exploring the possible similarities between Soviet chess and Soviet military operational concepts and strategies suggests caution and deserves a study much larger than the present one. However, the mere consideration of a few issues is enough to emphasize the main object of this paper--the suggestive value of thinking about war and strategies with the use of popular games of strategy. Soviet Cold War conventional force operational concepts were built on an offensive strategy that was also the preferred method of chess play. The Soviets planned to use multi-echeloned forces to seize the initiative and sustain a tempo of operations to retain that initiative against NATO forces. The Soviet Operational Maneuver Group was a high-risk element of a strategic combination of forces that was to drive deep into the enemy's operational depth. It was, among other things, to strain the opponent's decision-making ability by attacking command and control centers, seizing key roads and terrain, and threatening NATO forces that were attempting to combine to assist their units at the front.

In the realm of strategic weapons there are also some indications of this Soviet style of chess play. Strategic culture literature has argued that the Soviets for a long time did not make the same doctrinal distinction between deterrence and defense which was made by strategists in the United States.101 The American conception evolved into the idea of mutual assured destruction (MAD) and,

therefore, mutual deterrence. The Soviets believed what was good for defense was good for deterrence. If deterrence failed, the forces would be used--the atomic queen would have a very active role. MAD was American logic that made little sense to the Soviets who were determined to build effective survival and war-fighting strategies.102 The Soviets, therefore, gave more attention to fighting and winning a nuclear war--winning the chess game.

VI. PLAYING CARDS WITH CLAUSEWITZ

> In the whole range of human activities, war most closely
> resembles a game of cards.
> <div align="right">Clausewitz, <u>On War</u>103</div>

Although Jomini and Clausewitz were contemporaries and they both thought in terms of the importance of mass and concentration, maneuver, and decisive battle, they differed considerably in their theoretical perspectives on war as well as the game metaphors they chose.104 Whereas Jomini chose the game of chess, Clausewitz selected a card game metaphor because he viewed war as "an interplay of possibilities, probabilities, good luck, and bad."105

As we discussed earlier, poker provides a suitable game lens for Clausewitz' theory. Poker has relatively few rules, is loosely structured, has a great degree of uncertainty, and the resources or capabilities required in the game are divided unequally among the players. This card game "lens" highlights many significant aspects of Clausewitz' theory, provides a basis of comparison to theories reflected in other games, and suggests game preferences that lend themselves to specific characteristics of strategic culture.

Unlike Jomini, for Clausewitz "maxims" and "mathematical factors" did not have a firm basis in war. In fact, Clausewitz bluntly stated, "that it is one of the

chief functions of a comprehensive theory of war to expose such vagaries."
Although he wrote that "geometric factors," an important conceptual tool in
Jomini's theory, had some relevancy at the tactical level of war, they had none at
the strategic.106

Clausewitz differed from Sun Tzu, who believed in a rational calculation of
strategy based upon acquisition of information about the enemy. Clausewitz saw
opponents in war never having complete information about the other. Success
came from an ability to make one's way intuitively through the chaos not from
perfectly executing a preplanned strategy. This was because, for Clausewitz, "No
other human activity is so continuously or universally bound up with
chance."107 For Clausewitz chance was a distinguishing characteristic of real
war and it had to have a prominent place in his general theory of war.108 War
for him had aspects of a competitive game of chance. This underscored the two
major characteristics of war that were its fundamental essence for Clausewitz --
"reciprocity" and "uncertainty." For Clausewitz war ultimately became a
"gamble."109

Clausewitz, however, was not referring to a pure gamble. Gambling theory
tells us that in a pure gambling game there is, strictly speaking, no opponent, and
no strategic skill is required to make rational gambles.110 Clausewitz emphasized
the interaction--"reciprocity"--of humans in the competitive and violent
environment of war. Although he acknowledged that war had aspects both of art
and science, Clausewitz transcended that debate and concluded war was primarily
"a part of man's social existence."111 As such, Clausewitz went on to explain that
war was always "the collision of two living forces."112 The complex dynamics of
this human "interaction" in war were, for Clausewitz, "bound to make it unpre-
dictable."113 His belief in war's complexity led him not to prescribe any military

action with certitude--the best one could do was to assess "probabilities."114

It would be disastrous, however, for a poker player to decide his moves simply on the basis of the game's probabilities. As game experts have pointed out, if a poker player did this consistently, then his opponent would be able to infer the nature of his hand and how he would play it.115 This would eventually become a losing strategy for the rigidly probabilistic player. Thus, the poker player must keep in mind that the decisions and actions he takes in the flow of the game are observed by his opponent. The information an opponent gains from these observations could be used against him. The need to take the other thinking player into account marks a departure from pure gambling. Clausewitz understood the action-reaction dynamic of thinking competitors in warfare. What is more, Clausewitz believed that in real war what is true most of the time is not true every time. Knowledge of and skill with probabilities will not make a good card player or a successful commander, but a total disregard for them will make a bad one of both.

Yet, the poker "bluff" does not fit neatly in Clausewitz' theory of war. This is because Clausewitz himself did not otherwise stress deception (the bluff) except to mention it in passing as a tempting last "hope" for only the most desperate of situations.116 Clausewitz wrote that the efforts to prepare "a shame action with efficient thoroughness" to impress an opponent required a considerable expense of time, effort, and resources and, when all was said and done, they may not have the desired effect. Clausewitz appeared to think about operational and tactical deception in terms of costs that detracted from concentrating forces for the main effort. "Feints...," he wrote, "...by their very nature do not lead to decision...."117 He was not convinced one could achieve a strategic deception. In this area, he shared Jomini's assessment of the limitations the technology of their era imposed.

He did acknowledge that words were cheap and false plans and orders could be used "to confuse the enemy... if a ready-made opportunity presents itself."118 We will never know, but Clausewitz may have seen a game of poker providing some "opportunities" and he may have found bluffing useful to win a few games. Perhaps if he had lived in a different era of warfare, he may have modified his thoughts on this issue.

Most significantly, a card game reflects Clausewitz' emphasis on uncertainty and the lack of a structured environment in war. If Clausewitz was not clear about the specific card game he had in mind, he was clear about the general type of game--a high stakes, unpredictable, gambler's card game that reflected his own view of the changing nature of war during his own lifetime.

Clausewitz saw war in his time have few rules and grow in its uncertainty. He saw Napoleonic warfare as a change from the trivial and restrained "game" characteristics of eighteenth century warfare.119 Because of the small economic base of European states through most of the eighteenth century, opponents were unwilling to risk the loss of an army that was difficult to raise. Not seeking ultimate exertion against each other, they chose to limit the means and aims of war.

For Clausewitz, this changed with Napoleon. No longer were Field Marshal Maurice Comte de Saxe's comments of 1732, that a good general could make war all his life and not be compelled to fight a battle, valid anymore.120 Rules of the past were broken and changed. Clausewitz wrote that battle was no longer a "kind of evil brought about by mistake."121 Unlike Sun Tzu who saw force as something that should be used more sparingly, Clausewitz saw destruction of an enemy's forces in battle often as both necessary and the most effective method of achieving the goals of the state--and at the same time, the most risky method.122

Napoleon conducted war on a massive scale for ambitions that risked the survival of entire nations. The game became more unpredictable and more of a gamble. The ongoing uncertainty combined with the dangers and responsibilities of command in war has an unsettling impact on the "players" that is unparalleled in human social interaction.

Clausewitz' appreciation of uncertainty led him to his assessment of reliable military intelligence. From his perspective, Clausewitz developed a low opinion of "reliable" intelligence in war. He saw incomplete knowledge of the enemy as a principal reason that war in theory differed from war in reality. Clausewitz wrote, "Many intelligence reports in war are contradictory; even more are false, and most are uncertain....In short, most intelligence is false, and the effect of fear is to multiply lies and inaccuracies."123 He believed that in war all information and assumptions were open to doubt--in reality the best you could have were only probabilities.124 In this view of war that is characterized by poor intelligence and uncertainty, Clausewitz simply offers that the maximum concentration of force, regardless of the enemy's plan, is the best possible means to success.

Returning to our card game metaphor, Clausewitz would not claim a guarantee of success even if one opponent could see some or all of an adversary's cards for two major reasons. Implicitly understood by Clausewitz, we now view, in our modern thinking about intelligence, the capability and the willingness to act on information as key elements of successful use of information. A poker player may not want to let his opponent or others know about his access to such accurate information about another's hand. He may be disposed to use it sparingly so as not to give away his source. Additionally, in the card game, although he may save himself from catastrophic defeat, a player is limited in his ability to take advantage of this information if he does not receive the cards (capabilities) that

can beat his opponent's hand. In war, a commander's disposition to using the information, his command and control organization, and the readiness and flexibility of his subordinate forces are all factors that would affect the use of intelligence information. Michael Handel has argued that the early British use of ULTRA during the Second World War is an example of these difficulties. Until the British developed the capabilities, including American support, to exploit the remarkable strategic information they received about the Germans, they could not capitalize on the information and guarantee any success with it.125

The second reason is the existence of what Clausewitz dubbed "friction." Clausewitz defined friction as "the force that makes the apparently easy so difficult."126 "Action in war," he went on, "is like movement in a resistant element."127 For Clausewitz intelligence was a source of friction. This was very different from Sun Tzu who encouraged the utmost efforts to obtain it and use it to reduce uncertainty. Clausewitz used friction to distinguish real war from "war on paper"--Jomini's fighting on a map or chess-table.128 This concept is closely connected to Clausewitz' concern with uncertainty, chance, and reciprocity. The action that a commander takes with the information at hand may not unfold as he planned it. The enemy may not respond in the way he had envisioned. Seeing his opponent's cards gives him a snapshot of capabilities and almost perfect information. What is missing is his opponent's intentions and any certitude about the reciprocal and unpredictable dynamic of competitive play. Although the poker player must contend with them, war significantly complicates the elements of timing, communication, risk, and the expected outcome of the planned move. Clausewitz wrote, "In war more than anywhere else, things do not turn out as we expect."129

The card game also lends itself to illuminating another of Clausewitz' original

theoretical concepts--the "culminating point."130 For Clausewitz the culminating point meant that every offensive ultimately exhausts itself and cannot extend into time forever. Factors such as friction, combat losses, fatigue, over-extension of supply lines, and other factors make this so. Thus, the commander directing the attack must know when to stop the offense and go over to the defense. In a sense, it is the key point when and where the professional card player, an experienced and successful gambler, must not press on with his current hand or the rest of the game beyond his previous run of luck. This is often the classical gambler's dilemma. When is it time to consolidate winnings or cut losses while one still has some gains and advantages? The gambler must know when to "fold the cards." Clausewitz cited Napoleon as an example of how a losing commander gambled away his "last resources" at Belle-Alliance hoping to pull victory out of a battle that was beyond his ability to win.131 The see-saw campaigns of the British and Germans in North Africa in the early years of the Second World War are another example of commanders pressing attacks beyond their culminating points.

Although much has and can be written about Clausewitz' assessment of military leadership, it is Clausewitz' insistence that what identifies great military leadership most is the readiness to take risks that serves our purposes here. According to Clausewitz, to know when to fold the cards--that is, when to recognize and overcome the culminating point in a military operation--a leader must possess "discriminating judgment," instinct, and "imagination" to deal with the uncertainty, friction and chance in such a decision.132 During the Second World War, German Field Marshall von Manstein anticipated the heady optimism of Soviet commanders and he organized and directed his forces in the Crimea Kharkov in 1943 to smash Soviet Group Popov as it exceeded its culminating point.133

Clausewitz tells us that the "military genius" is willing to take risks and challenge chance. Clausewitz disagreed with Maurice de Saxe, who wrote that, "We should make war without leaving anything to chance."134 Clausewitz recognized that the best commanders can do many things to leave the least to chance, but the best ones understood that there was also much in war that had to be left to chance. Since action in war took place "in a kind of twilight" or "fog," he argued, "Whatever is hidden from full view in this feeble light has to be guessed at by talent, or simply left to chance."135 Admiral Lord Nelson shared similar thoughts before the Sea Battle of Trafalgar(1805), "Something must be left to chance; nothing is sure in a sea fight above all."136 Steven D. Kornatz has made a persuasive argument that much of the naval success that has been attributed to mere "luck" to Japanese Admiral Togo in the Russo-Japanese War was predetermined by great leadership and an ensuing boldness with risk-taking that debilitated Russian leadership at sea.137 "Boldness in war," Clausewitz observed, "has its own perogative...it is a genuinely creative force."138 One should not avoid or ignore chance. Clausewitz believed the best commanders were the best and luckiest gamblers. Both gambler and commander saw chance as neutral and as an opportunity. Clausewitz wrote that if a commander was willing to take "greater risks" than a "greater prize" was possible.139 In modern game theory, this is a "maxi-max" strategy--maximum risk for maximum gain.

Philosophies of war, like the strategic theories they inspire, and like popular games may have elements of lasting significance, but they are initially products of time and place. There is simply no one immutable philosophy of war, strategy, or game. During most of the Cold War, America's decision-making elites were from generations very familiar with the game of poker. These leaders were very familiar with poker terms, even if not avid players of the game, that had entered

the language and, thus, had symbolic significance to the general culture. Some of the game idioms identified by John McDonald such as ace in the hole (up the sleeve), in the chips, bluff or call a bluff, stand pat, put cards on the table, have a showdown, chips are down, and cashing in one's chips were common language terms.140

These symbolic terms had connotations to risk, strategies and effort. Decision-makers of the period used them in their conversations when they discussed strategic issues. One example for our discussion is the case of President Dwight D. Eisenhower. Eisenhower learned to play poker at a young age and he played it well for about thirty years. As a young man, he used winnings to help pay for his brother's college education. Eisenhower as a young officer played poker on army bases around the world and supplemented his income with poker winnings. According to his biographer, Stephen Ambrose, he was such a regular winner that as he rose in rank he found that he was creating resentment among fellow officers and he quit altogether. He became an obsessed and successful bridge player by the time he was elected to the presidency.141 During the Berlin Crisis of 1958-1959, Eisenhower in secret meetings talked to senators and representatives in language colored by the poker metaphor. He told them that the Soviets were again maintaining a "strong bluff to the last moment" and that the United States should not overreact to these types of crises. He stated that it was necessary to rely on deterrence. He went on to add, however, that if the Soviet Union started a ground war the United States would have "to push its whole stack of chips into the pot," if it became necessary. Eisenhower and key leaders in attendance at the meeting agreed that if war came, it would be "an all-out war."142 Most historians believe everyone understood this to mean the use of nuclear weapons.

This one example does not imply that Eisenhower only thought about strategic events by consciously considering a game strategy. It does suggest, however, that a familiar, comfortable, and cultural cognitive frame of reference can enter and influence the decision-making process.

VII. PLAYING WEI-CH'I WITH MAO

There are two forms of encirclement by the enemy forces and two forms of encirclement by our own--rather like a game of weichi. Campaigns and battles fought by the two sides resemble the capturing of each other's pieces and the establishment of strongholds by the enemy, and of guerrilla base areas by us resembles moves to dominate spaces on the board.
Mao Zedong , <u>Selected Military Writings</u> 143

Mao combined his practical military and political experiences in the Chinese Civil Wars and against Japan with his long fascination with the study of war and politics.144 What has evolved as Mao's "theory" of "people's warfare" is built on the basis of "mobilizing, organizing, arming, and fighting with the whole people of a society."145 What exactly Mao inherited from his rich Chinese cultural heritage, which included Sun Tzu, and what he gleaned from foreign ideas is subject to debate. Most would agree in general with Mao's own self-assessment of a reasoned and pragmatic selectivity. Mao was very willing to adapt "Marxism and Leninism" to the "specific characteristics" of his "contemporary China."146

As a way of introduction to Mao's game of wei-ch'i, it is essential to understand that Mao repudiated a Chinese historical tradition that saw the conduct of war as an art. Mao issued most of his military writings to solve specific strategic problems without trying to include all military subjects. As Chen-Ya Tien has argued, Mao emphasized the objective laws of war and the "scientific" characteristics of strategy, campaigns and tactics. In discussing how to study war,

Mao wrote that "the laws of war are problems which anyone directing a war must study and solve."147 Mao believed every war had its own laws. Although he believed one could learn from the historical record, he was opposed to indiscriminately reproducing the military ideas of others to include those of ancient China.

In some respects, Mao was Jominian. Mao, like Jomini, was concerned with practical application.148 Both men believed the theory could be learned and understood, the difficulty was in its consistent application in real warfare. However, Mao was more interested than Jomini in stressing that there was no dichotomy between theory and practice and that the two had to be integrated for victory.149 Mao was more Clausewitzian in his understanding of war as a continuation of politics and wrote that "politics is war without bloodshed while war is politics with bloodshed."150 Although Mao chose wei-ch'i and Jomini chose chess as their game metaphors, their games share intriguing similarities as well as differences.

In a 1948 directive regarding operations against the Nationalist Chinese during the last phases of the Chinese Civil War, Mao discussed two militarily significant locations and wrote that once they were captured, "you will have the initiative on the whole chessboard."151 If we overcome the intrinsic difficulties of the Chinese to English translation, Mao was really referring to the "board" for the game of wei-ch'i. The idiom that comes at the end of the sentence in the Chinese language means literally "the whole situation will be living." Such a saying is a common wei-ch'i idiom.152 This example echoes a chess strategy that seeks positional advantage to employ better combinations of pieces.

Wei-ch'i has some other similarities to chess. Both have an elegance attributed to them that is based on intellectual skill. Wei-ch'i thinking parallels

an Asian-Pacific emphasis on intellectual pliancy in strategic planning.153

What is also similar is that both games lack a consideration of chance. As discussed earlier in this study, factors of probability and uncertainty in wei-ch'i are similar to those in chess. Listening to Sun Tzu's exhortations, Mao and the Chinese Communists emphasized extensive intelligence efforts to reduce elements of chance and to maximize the effectiveness of guerrilla and conventional forces.

Wei-ch'i, as Scott Boorman has developed in great detail in The Protracted Game, parallels much of Mao's strategic choices and ideas about "Protracted People's War" or "Revolutionary War" theory.154 What is most important for illustration and for the purposes of our discussion is how Mao's three-stage development of revolutionary war corresponds to classic wei-ch'i strategy. Mao's three stages of revolutionary war were: (1) strategic defensive ; (2) strategic stalemate ; and (3) counter-offensive to strategic offensive.155 Within this Maoist approach, leaders were to continually weigh the relative strength of the two sides. Appropriate assessments would help the leadership choose, along this three-stage scale, the best strategy for any particular moment. The classic wei-ch'i pattern of play has some revealing similarities. The wei-ch'i phases are: (1) disconnection; (2) encirclement; and (3) annihilation.156

Mao's first phase and the opening phase of a wei-ch'i game both reflect the idea that a player must begin with forces that are initially weak and must build up strength. In the game, the general strategy in this phase is to avoid the opponent, build up one's own secure areas, and then attack unsupported pieces of the enemy that have overreached. Mao saw the opponent, at the time the Japanese, on the strategic offensive and the weaker Chinese on the strategic defensive. Chinese regular forces would use mobile warfare and depend heavily on guerrilla forces. In protracted war and in wei-ch'i, one defends by attacking,

eschewing positional warfare or containment types of defenses for the most part. Here, Mao also borrowed from the Sun Tzu tradition that saw offense and defense as complementary rather than alternative strategies. Mao believed that the enemy's offensive momentum would be checked in this phase. In the game of wei-ch'i, an opponent's outlying and unsupported stones are "disconnected" from stronger and major concentrations of stones.

Contrary to chess strategy, the skilled wei-ch'i player attempts to control the edges or corners of the board before attempting to dominate the center.157 For Mao this equated to building up base areas in border areas. This was with the ultimate goal of the wei-ch'i game in mind--to control the most territory with the fewest pieces. There is no special value to any given intersection in the game, but one must seek to control the maximum number.158 Mao wrote in 1947, "do not make holding or seizing a city or place our main objective."159

The strategic situation in Manchuria that developed at the close of the Second World War might be likened to the opening of a wei-ch'i game where the Communist Chinese player placed the bulk of his stones, aided strategically by Soviet occupation of these areas, at the top of the board in northeast China and along the adjoining sides. The opposing Chinese Nationalist player had placed the bulk of his stones at the lower edge of the board, southern China. The Nationalist Chinese player then moved pieces far from a secure base to claim highly and industrially developed main cities and communication links in Manchuria. One could argue that the Communist Chinese then played a wei-ch'i solution by disconnecting, encircling and annihilating these Nationalist Chinese forces.160

The second stage is strategic stalemate. Because of the enemy's overextension, Mao wrote that the enemy now had to fix "certain terminal points" of his advance and begin "safeguarding his occupied area."161 To consolidate forces,

the enemy gives up positive control of large portions of the countryside. Mao believed the regular Chinese army, acting primarily as organized guerrilla forces, would initially dominate this stage and penetrate loosely defended areas. In this phase, operations that encircle the encircling opponent and that initiate major counteroffensives begin.

Mao specifically used the wei-ch'i metaphor to describe the encirclement and counter-encirclement strategies.162 Mao wrote that the Chinese were fighting the war against Japan on interior lines, but when the "main"(regular forces) and "guerrilla" forces were carefully considered together the situation was more complex. Mao argued that "the former [main forces] are on the interior lines while the latter [guerrilla forces] are on exterior lines, presenting a remarkable spectacle of pincers around the enemy." Borrowing from a wei-ch'i idiom, Mao called the resulting situation the "jig-saw pattern" of strategy.163 This mix of Jominian terms for lines of operations created, to a degree, non-Jominian, nonlinear and discontinuous battlefields. The purpose of this phase was to further isolate and disconnect enemy groups. Attacks ideally were to achieve tactical superiority in key places to prevent the enemy from recombining to produce strategic advantage. To the uninitiated opponent, this is a confusing operational scheme that has its antecedent in SunTzu's dictum: "The ultimate in disposing one's troops is to be without ascertainable shape."164 The wei-ch'i goal is to formulate a deceptive formlessness until it is too late for the opponent.

Absolutely critical to the Communist Chinese in this phase, and throughout such a war, were the extensive intelligence efforts they pursued to create some of the "perfect information" aspects of the board game that are needed to execute encirclements.165 Wei-ch'i players often call the middle part of the game the encirclement phase. This is in contrast to chess, as you remember, where the

generally accepted strategy of the middle game is gaining control of the central hub of the board. It is usually during this phase in chess, or as an immediate result of it, where the major battles of annihilation occur.166

The final phase, according to Mao, was the counter-offensive to strategic offensive phase. Mao saw this phase dominated by mobile warfare by regular army forces with guerrilla forces less important than previous phases. Wei-ch'i players often call the final process the annihilation phase. In games between expert players, these battles of annihilation usually occur toward the later part of the middle game. However, in games with mismatched players, the more experienced player uses the middle game to continue to set up his encirclements so that toward the end of the game massive battles of annihilation continue to occur. The experienced player then reaps great windfalls of territory and captured pieces at the surprise of the weaker player. Mao's certitude about the moral righteousness of his cause created a revolutionary's contempt for the ultimate efficacy of his opponents' strategies.167 In Mao's wei-ch'i game against the Japanese and the Chinese Nationalists, Mao saw himself as the master player against weaker players.

As a summary, then, Chinese Communist wei-ch'i encirclement is an indirect strategy departing from an offensive strategy of a more direct forward or frontal approach. It was a protracted process and depended heavily on interior rather than exterior lines of operation. It accepted discontinuity. Unlike the more western proclivity toward early strategic concentration, the Communist Chinese sought decisive strategic advantage by the early exploitation of the strength of dispersed forces and the emphasis on tactical concentration. Rather than a pure focus on enemy forces, this strategy slightly inverts this western tendency and places more emphasis on general territory-acquisition strategies. Finally, it was

not apparent until its final phase.

Yet, Mao's people's warfare departed from classical wei-ch'i play by emphasizing complete victory over the generally accepted game concept of an incomplete victory. Mao denied the fundamental contradiction of wei-ch'i encirclement. As Scott Boorman astutely points out, wei-ch'i encirclement strategies are "intrinsically insufficient" to achieve capture of every hostile group.168 Thus, a conflict exists in the final phase of military strategy when a Maoist considers the annihilation phase. Communist successes against the Nationalists in the important Battle of Huai-Hai from November 1948 to January 1949 seemed to support Maoist theory which believes that once encirclement is achieved annihilation must be only a short time away.169 The problem is there is no guidance on how to achieve the annihilation once encirclement is complete. This is a departure from Sun Tzu who cautioned about protracted operations and a foe that was encircled and not permitted a chance to "flee." Sun Tzu believed the attacker would pay a heavy price in a battle of attrition against a desperate enemy.170

There is another theoretical aspect to this shortcoming in the Maoist perspective. It ignores Clausewitz' caution about the culminating point. The emphasis on constant assault is not unique to Mao or wei-ch'i, but it does cause a dilemma at the point of diminishing returns that Mao's theory does not sufficiently consider. This, taken together with the previous discussion, may partially explain Mao's military bankruptcy in the Korean War after United Nations forces stabilized their lines after the initial Communist Chinese intervention. Mao's intervention as well as his strategies during this war had much to do with Communist Chinese confidence in their own military prowess which flowed from a belief that they had perfected a "weak army's strategy."171

In their people's war against the U.N.'s high technology war, the Chinese fought a conventional war without the key ingredients of a favorable theater geography and a favorable social-political environment of the Korean people. The Chinese forces sustained some of their heaviest casualties attempting to launch mostly surprise tactical attacks in severe winter with troops without rifles and boots.172

In the "people's war" in Vietnam, the Communist-led Vietnamese were victorious at Dienbienphu against the French in 1954, but they suffered three times the fatal casualties in their efforts to reduce the surrounded position. At Khe Sanh (January-April 1968) in Vietnam, North Vietnamese General Vo Nguyen Giap sustained enormous casualties when he encircled, besieged and then abandoned the U.S. Marine position. From a modern western perspective, one seriously questions these Vietnamese losses from attrition. In Khe Sanh, they appear to have been well beyond this battle's worth and duration, if we are to believe Giap's account that Khe Sanh was only an attempt to divert U.S. attention away from the cities--the main effort of the Tet Offensive.173 Yet, this raises a caution when examining attrition warfare and applying a theoretical concept such as the culminating point across cultural lines. Different strategic cultures may have different estimating processes as to when they believe they are in danger of overextension. The Chinese, according to Shu Guang Zhang, differentiate much less than the United States between human and material costs. Traditional Chinese ideology of warfare, going back to Sun Tzu and before, encourages the Chinese people to fight and die for a holy and moral cause.174 Despite their losses in the Korean War, the Chinese were proud of their effort to meet and confront the encircling "American Imperialism." The costs sustained were worthy. Although Mao argued for battles of "quick decision" within a protracted war, there is an inherent tension here that is very likely to lead to

both wars and battles of attrition against a determined enemy.

Application of wei-ch'i as an analogic model is not limited to the Communist Chinese and pre-1949. On a geostrategic level, China's concern with encirclement around its borders partly explains much of its recent foreign policy history. Its intervention in Korea in 1950, its border war with India in 1962, and its border confrontations with the Soviet Union in the 1960s to mid-1970s support this concern. China improved relations with the United States in the 1970s to offset encroaching Soviet power. After the United States pulled out of Vietnam, the Soviets pulled the Vietnamese to their side and the Sino-Vietnamese Border War of 1979 was a frustrating Chinese attempt to punish the Vietnamese for siding with the Soviets and for their gains in Kampuchea.175 The growing strength of Japan, improving U.S.-Vietnamese relations, the lingering Taiwan problem, Tibet's strong separatist tendencies and the decay of North Korea provide potential regional problems for Chinese strategy.176

These strategic tensions and past military operations made it clear to Chinese leaders that the Chinese military was badly in need of reform and modernization to counter these encirclement threats at greater distances from the huge but unwieldy People's Liberation Army. Thus, the Chinese are improving the capabilities and power projection of their wei-ch'i stones as they meet the outlying and extended stones of other players. The modern Chinese strategic concept is still in transition, but the Chinese term their direction: "people's war under modern conditions."177 The thrust is a departure from a Chinese tradition of retrogressive and coastal defense to an active or forward defense.178 This now means developing modernized forces aimed at local operations, limited war and regional conflicts on the ground, air, and sea. The Chinese are building highly mobile and well-trained "fist forces" or quick strike forces as spearheads for

border and regional contingencies.179 The Chinese Navy is growing, modernizing and has an expanding role in this new direction, especially in relation to the South China Sea Islands dispute. If an enemy penetrates China and occupies territory, however, the Chinese may fight a version of a people's guerrilla war and wei-ch'i operational encirclement, but it would be different from before--with modern firepower and better-equipped regular forces.

VIII. PLAYING DISASTER CHESS WITH SCHELLING

> A chess game can end in win, lose, or draw. Let's change the game by adding a fourth outcome called "disaster." If disaster occurs, a heavy fine is levied on both players, so that each is worse off than if he had simply lost the game.
>
> Thomas C. Schelling, Arms and Influence180

Born in Oakland, California in 1921, Thomas C. Schelling, an economist by academic training, an international trade negotiator, and an inspired educator became a prominent strategic theorist in the 1960s.181 His theories and strategic analysis reflected his background as an economist and a negotiator. He developed a modified game of chess as a way to model some of his key theoretical ideas about competition, bargaining, cooperation, deterrence, and limited wars. The unique historical context for Schelling's game helps us to better understand it and elements of his theory.

Schelling's intuitive economic perspective led him to develop a formal theory of conflict that was all-encompassing.182 He believed that the same principles applied whether a dispute was between competing business firms or the superpowers armed with nuclear weapons.183

Believing conflict was a part of all social relations, Schelling was interested

in identifying strategies that would lead to successful outcomes-winning, in a relative way.184 War was essentially another case study in bargaining--albeit a particularly violent form. Although formal game theory provided the basis for many of Schelling's ideas, he acknowledged the limits of this approach and attempted to overcome them by applying an impressive rigor and imagination to his theory and by appealing to those who felt the early Cold War doctrine of "massive retaliation" was too confining.185 Unlike Clausewitz, Jomini, and Mao, Schelling was more interested in avoiding war and, if it came, limiting it to one's advantage.

Most game theory analysts before Schelling had concerned themselves with complete competition, zero-sum games. Schelling chose to explore non-zero-sum games, such as his disaster chess game, which he felt were more pertinent to real conflict situations and included a mixture of competition and cooperation. This appealed to strategists and decision-makers who were wrestling with ideas about limited war in the nuclear age. Basically in limited war, you wanted to defeat the enemy's will without compelling him to bring nuclear weapons into play.186 Schelling devised his game of disaster chess in this context to show what happens when two opponents compete in a game characterized by partial conflict of interest and partial mutuality of interest. Throughout his work, Schelling used aspects of many different and hypothetical games to illustrate his concepts. It would be unfair and simply wrong to suggest that Schelling did not understand some of the limits to his disaster game that fueled later criticism. For our purposes, based on a careful consideration of his work, this study does its best to keep those in mind and, therefore, we use the disaster game as an illustration of larger issues reflected across his theories.

Schelling's addition of "uncertainty" in disaster chess with the roll of the

dice is more accurately an added complication of probability assessment. This increases the risk conditions of the game, but differs from Clausewitz' understanding of uncertainty. The modified chess game is more risky than a regular chess game, but is less risky than poker. This is because there is a certitude of the possible probabilities and, although there is no certitude of exactly what number will show in a roll of the dice, there is an assumption that the probabilities are known to both players.

Schelling's definition of deterrence, within the intellectual elegance of the framework of chess, is somehow to persuade someone we define as a "potential enemy" to abandon a certain path of activity by making it appear to him to be in his own self-interest to do so.[187] Deterrence was persuasion. Such a strategy, if used in the real world, could avoid war. Departing somewhat from Sun Tzu, but most certainly from Jomini, Clausewitz, and Mao, Schelling was "not concerned with the efficient application of force but with the exploitation of potential force."[188] In the context of the disaster game, as you recall, a player manipulates the threat of force that can bring disaster to dissuade an opponent from moving key pieces across the center line of the board.

But Schelling's description of possible game play does not fully capture the dynamics of risk-taking. When the players start the disaster chess game they start with equal capabilities. As the game progresses and one player appears to get the upper hand the weaker player may increase his risk-taking to force the stronger player to give up some advantage, perhaps withdraw his queen or knight to his side of the board. This, however, challenges Schelling and most deterrence theorists who have argued that what keeps a weaker player from taking risks is the threat of punishment. Soviet Premier Nikita Khrushchev's attempt to achieve strategic parity and pursue Soviet international interests in

1962 by placing missiles in Cuba is an example of this type of risk-taking. Intimidation and deterrence, therefore, can fail to deter risk-taking. Britain's strategic arsenal and conventional forces, displaced from the region, did not deter Argentina in its local grab for the Falklands.

Schelling did introduce an opportunity for greater deception than standard chess in the conception of his theoretical game. This was contained in his concept of "the threat that leaves something to chance."[189] This was not pure chance as we understand it from our previous discussions in this paper. Schelling was really arguing that one can create the "perception" or "threat" of chance to persuade an opponent. Schelling saw this as manipulating risk to one's advantage. In its most simple form this entailed convincing your opponent that although an all-out war was not rationally intended, there was a risk that such a war could occur whether intended or not.[190] Thus, to this rational process, Schelling was arguing that a perception of "irrationality" might be added! In some ways this is a version of the bluff in poker. Schelling argued that a limited war serves the function of posing the deliberate risk of all-out war, by suggesting there could be inadvertent escalation, mistakes, miscommunications, passions from popular pressure, accidents, loss of control of the political or military process, etc. Thus, even the threat of a limited war could make pursuit of his limited objectives intolerably risky to an opponent.

Although Schelling does acknowledge that there is a dynamic relationship between disaster and defeat in his game, he does not discuss it at any length.[191] His suggestion does lead us to the formal proposition offered by Hannes Adomeit that "the lower the difference between disaster and defeat the higher the risk-taking propensity of the player."[192] Israel's surprise attack in 1967 reflected its own calculation that the virtual blockade of the Gulf of Aqaba and the deployment

of Egyptian troops in the Sinai constituted a defeat. It was better, from the Israeli perspective, to accept the risks of potential disaster than the serious costs of the Egyptian moves.

Critics have found fault with Schelling's conception of the "rational" player who plays the disaster game. Schelling made the point that successful deterrence was built on the "rationality" of the party to be deterred. This "rational" player had a knowledge of his own value system, an ability to perceive alternatives and calculate probabilities, and an ability to demonstrate his own "rationality."193 Schelling does not sufficiently emphasize that the one making the deterrence threat must also know the same about his own situation as well as knowing his opponent's. He cannot assume. A player should seek information about an opponent to make any prediction about his behavior and his perceptions of risk. In reality, he will never have complete information. Schelling complicates this process based on his idea of inserting occasional irrationality into the process, as discussed above with reference to the "threat that leaves something to chance." This becomes especially important and more complex when dealing with an opponent from a different culture.

Schelling's intellectually intriguing concepts of brinkmanship ("manipulating the shared risk of war") and of manipulating and communicating threats for deterrence can play out, to a degree, in the disaster game.194 The common rules of this modified chess game, when ideally understood by both players, assist in the communication of the threat. Philip Green, however, is particularly perceptive when he argues that the uncertainties that abound in the real world that make brinkmanship problematical are quickly lost sight of in Schelling's game and the development of his approach.195 Schelling's theoretical development ignores the reality and complexity of human reciprocity, especially

in the absence of information, under conditions of simultaneous action and with time constraints.

For example, the imposition of time constraints to the chess game named disaster can make for a difference in the course of the game. Scarcity of time means less time for careful calculation and consideration of the state of the game. Anyone who has ever played instant move chess or has played with a constraint on the time one has to make a move knows there is a great difference in one's play. Afterwards you realize the moves that were overlooked. With time as a factor, there is a tendency to act quickly to prevent <u>faits accomplis</u>. With less time, communications (verbal and nonverbal) are subject to even more misunderstanding. Schelling does not adequately consider the danger of escalation, because his arguments suggest that threats do not have to be anxiety-producing but are simply motivators to correct choice.

In the real world, nations may not equally understand the "rules" of the game, or accept them, or they may have to mutually discover them. Difficulties which are associated with the translation of languages, misperceptions about the other's motives, and ignorance about the domestic settings where strategic decisions are made complicate this process. Shu Guang Zhang argues that the Sino-American pattern of confrontation of 1949-1958 was based on a mutual misperception where neither side had the aggressive intentions the other feared.196 The problem remains that reality is inconsistent with the belief that as long as deterrent threats are credible and communicable an enemy will retreat. There are variables of a nation's perceptions, values, benefit and cost assessment, and interests that suggest deterrents may not mean the same thing to different nations with different cultures. A nation may even calculate an adverse outcome to a strategy as highly probable, but still select it.

As Ken Booth has warned, the rational behavior of a nation as it makes these decisions should not be confused with reasonable behavior.197 Reasonable behavior is usually the decision we prefer to see made because we believe, if in our adversary's shoes, we would have made it ourselves. If the decision is not the one expected, it does not mean the decision is "irrational." First, our own cultural preferences can prevent us from seeing options that are objectively rational. Second, they significantly influence the importance of the ends for which we design means--strategies. If one side does not understand the "reasonableness" of another's end--their objective, than the "rationality" of the strategy chosen by the other side will probably escape the former.

An historic illustration of this problem is the U.S. miscalculation of the Communist Vietnamese determination in Vietnam. Schelling wrote, "Coercion depends more on the threat of what is yet to come than on damage already done."198 He categorized this war not as a war of the battlefield (as he did Korea), but one of "pain and destruction" in 1966.199 U.S. Defense Department strategists, at various times and to varying degrees of intensity throughout the war, attempted to implement "graduated reprisals," "shots across the bow," and "pricks of pain" with the "promise of more" to influence the Communists and to apply Schelling's theoretical idea of a coercive war.200

In the interest of clarification, the table on the following page provides a summary of the five theorists and the corresponding analytical game lens we have used.

TABLE 2.

GAME AND THEORIST COMPARISON

THEORIST

	Sun Tzu	Jomini	Clausewitz	Mao	Schelling
Game	-Diplomacy	-Chess	-Cards	-Wei-ch'i	-Disaster Chess
Structure	-Medium	-High	-Low	-Medium	-High
Uncertainty	-Medium to High	-Low	-High	-Medium	-Medium
Information	-Low to Medium	-High	-Low	-Medium	-Medium to High
Deception	-High	-Low	-Low*	-Medium	-Low to Medium#
Level of Risk	-Medium	-Low	-High	-Low	-Medium

* Clausewitz sees little use for deception despite the poker game's structure that readily supports it.
\# Schelling's concepts of manipulating risk and of convincing/deceiving an opponent with "something left to chance" increases the potential of deception.

IX. GAMING THE DIFFERENT GAMES--A PROPOSED METHODOLOGY

What if we "gamed" an experienced American poker player against a Russian chess master? Or, what if a Russian chess master played against a Chinese expert in wei-ch'i? Would there be any manifestations of general strategic preferences when they competed? Given the limited scope, but the suggestive intent of this study, and as an illustration of what this author has in mind, let us examine the case of a hypothetical chess player playing against a hypothetical wei-ch'i player.

The first stage in this "gedanken" experiment is to invent or design a game of strategy to provide a "neutral" playing field. For our current experiment, we will use the game of "Diplomacy" as the hypothetical research game. There are six significant reasons for its adoption. First, we are familiar with this game from our previous discussion and using it here allows us to quickly understand and visualize the basic research game. Second, as we are also aware, it has rather simple rules. This would make it fairly easy to learn for our wei-ch'i and chess players. Third, "Diplomacy" as we discussed before is a multi-player game that has a close correlation to a realistic multipolar strategic environment that appears to characterize our current era. The game can also highlight decisions of deterrence. Fourth, the game permits a fascinating interplay between opposing players. It lends itself to solutions that require various types and levels of communication. In our hypothetical experiment much of this must be assumed and problems in communicating and reaching agreements can only be surmised. However, as proposed in the next section of this paper, a researcher can observe and analyze this communication if the experiment is actually conducted. Fifth, unlike most games of strategy there is an element of simultaneity in Diplomacy's "moves" that lends more reality to decision-making than a simple process of

sequential moves. Finally, the game lends itself to easy rule and structure modifications to include regulating time constraints, experimenting with team play and group decision-making, and adjusting the number of players.

What are some of the hypotheses about the contending players that we can test? What might we expect to observe? Some areas or possibilities to examine in our experimental game might include the following: perceptions and use of time/tempo; use of strategic information and intelligence; spatial preferences; and offensive tactics and strategies.

First, we must consider how the two players would perceive and use time. According to the preliminary analysis we have completed to this point, we would expect the wei-ch'i player to be more comfortable with the protracted duration of an average "Diplomacy" game which lasts from 4 to 10 hours.201 Also, we would expect the wei-ch'i player to anticipate and to prefer a relatively slower rate of play, for the majority of the game, than the chess player because of his experiences with the average wei-ch'i game which usually contains 200 to 300 moves.202 The chess player, conversely, will be searching for ways to speed up the tempo of the game, and, thus, military operations at critical points. This is based on the fact that many of the chess pieces can make moves that quickly cover a great deal of board distance in one move and can be quickly moved again. Wei-ch'i pieces move only once in the game to one intersection in a turn. Thus, we have a player accustomed to a gradual tempo of progressive but semi-static development (wei-ch'i) facing an opponent who has an understanding of swift and shifting combinations and recombinations of force.

The second area of interest is the use of information. Both players play games that game theorists label "perfect information" games--games in which, on any turn, both players know all the moves that preceded the current one and

ideally should grasp the current situation. It is difficult to draw a clear hypothesis here. Since both players usually have more information in their "regular" games than they will when they play "Diplomacy," it is difficult to propose which type of player will be more comfortable with less and whether that will have any bearing on taking efforts to acquire more information. The wei-ch'i player, unlike the chess player, begins the game without the array of enemy forces on the board. The probabilities of initial placement of wei-ch'i stones easily outpaces the number of possibilities in the opening moves of chess. Because of the complexity of encirclement we can offer the hypothesis, which may prove unfounded with actual testing, that it will be the wei-ch'i player who more actively seeks information that he knows is routinely missing but can acquire, to a limited extent, in the "Diplomacy" game setting.

The use of space is another intriguing issue. The wei-ch'i player sees a logical progression of occupation from the corners to the sides and to the center. Victory for the chess player comes from early dominance of the center of the board. Wei-ch'i is a more protracted game not only in the dimension of time but also in space. The discontinuous lines of battle and territorial control that support the encirclement techniques of wei-ch'i are in stark contrast to the more direct and frontal approaches and the linear arrangement of forces practiced by the chess competitor.

Finally, we would assume that there would be a difference in the tactical and strategic approach of the two different players. There would be a great emphasis on tactical proficiency from the chess player. Some chess players are very cautious, and, thus, more risk-adverse at the tactical level because loss of one of their key pieces in a tactical blunder, given the expert play of their opponent, could easily be the cause of defeat in the game (strategic victory for the other

other side). At the same time, other chess players are more bold and look for creative ways to set up the decisive tactical engagement that will capture or destroy their opponent's key piece. Thus, the average chess player is more prone to see a picture of a large, decisive single battle.

The novice wei-ch'i player is prone to commit to tactical engagements early. He is unable to resist attacking enemy pieces before building up sufficient strength. In time, experienced players operationally encircle these smaller and overextended tactical formations. The experienced wei-ch'i player is more concerned with long term outcomes. Given the nature of his forces (all the pieces have the same inherent value) and the protracted character of his usual game, he can sustain tactical defeat on one part of the board if he strategically outmaneuvers his opponent based on the long-term outcomes of all the tactical operations on the entire board. The wei-ch'i player may not put as much emphasis on creative tactical proficiency, but he will value the superiority of tactical mass and concentration. We would predict that he sees not one battle but many battles occurring at various parts of the board.

This study does not adduce this intellectual experiment as evidence or argue that our analysis to this point leads to the "final" interpretation. The purpose of this thought experiment was to give a representation of a methodology and of this author's expectations that what will occur and what is important in the game is a result of strategic preferences and the dynamics of the game not solely on the win or loss outcomes of the game.

X. IMPLICATIONS FOR FUTURE RESEARCH

Why not actually conduct such an experiment? A possible next step, if we were actually to do so (which this author plans to do), would be to select and design some monitoring and assessment tools.203 Useful techniques such as pre-game and post-game surveys and video recordings of observations of player negotiations and decision-making are some of the methods that would be valuable and appropriate.

Another step in an actual experiment would be player selection. Chess clubs and wei-ch'i clubs would be the ideal places to start to find experienced players. We would record data about the sex, age, intelligence, ethnicity/nationality, experience level, caliber of play, and playing style of each player in his/her own game. We would also have to consider a wei-ch'i player's knowledge of and experience with "Diplomacy," chess, and/or western military affairs. Conversely, we would have to assess the chess player's knowledge of Asian matters and games, as well as any experience with "Diplomacy." Of course, we would also have to conduct "control groups" of chess players against chess players, poker players against poker players, wei-ch'i players against wei-ch'i players, and "Diplomacy" against "Diplomacy" players for comparative data.

One key decision about players would rest on the number of iterations an individual player would be allowed to play. There is a researcher's legitimate concern about players who play more than once. At what point do players grow too conversant in the "gamesmanship" of the new game? Also, we will have to create safeguards to help determine when players are playing with the researchers or attempting to play in a way they think they are expected to play.204 We would have to work through the inherent conflict this creates with

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the desire to run the largest possible number of iterations, because the more total iterations of the game the more empirical data would be available.

Another consideration when viewing the players is not to neglect the value of poor players. Poor players of a game can be a rich source of data. Information from this aspect of study can give us an appreciation of the range of complexity to strategic decision-making and risk assessments. They can provide us with information that can help teach future decision-makers or strategic planners who may confront unfamiliar conflict situations. What are the most common errors made by a weak chess player in chess or the new wei-ch'i player in wei-ch'i, and so on? How does a weak or new player adjust over time to play against a better player in his game or in "Diplomacy?" Do any of the personal characteristics about the players gathered above influence a player's learning ability? The body of information we have on psychological learning theory will greatly supplement our analysis.

After pitting chess players against wei-ch'i players, we should consider playing other game preferences against each other. We can continue to make observations and gather data to test hypotheses. What follows here are meant to be examples and are not intended to be exhaustive. Based on our preceding discussions of the different games and the various theorists of war, in a poker player's contest with the chess player is there a tendency for the poker player to take more risks, to be more of a gambler? Although the game encourages alliances, does the poker player or does the chess player act alone more than the other? Does the chess player need more information about opponent's capabilities than the poker player before making a strategic decision? Is there a tendency for the poker player to attempt more deception during the game? Does the chess player display spatial preferences for certain national positions or for forces so

that they engage toward and eventually dominate the geographical center of regional groupings in the game?

When considering the poker player against the wei-ch'i player we may have some similar hypotheses that were of interest in the game between the poker player and chess player. Others might include the possibility that we would expect to find the wei-ch'i player more predisposed to certain spatial placement of forces and/or of his choice of nation-state in the game. Remembering our discussion of wei-ch'i, would this placement be more toward the edges or periphery of the game board? Would we see this tendency in a regional grouping of states--Russia with respect to its borders with Europe--or states that are completely on the periphery--England. Will we see this tendency at the very beginning of the game and/or in specific wars with a competing nation. Although the poker player is more accustomed to playing in a multi-player game, would the wei-ch'i player seek to use alliances more to enact encirclement strategies? Although poker games can last a long time, will the wei-ch'i player demonstrate more patience, a more developed strategy, and a more protracted approach since wei-ch'i games are usually of a long duration?

There may be some usefulness to reconsidering Schelling's disaster chess game. There was a body of literature that created great debate in the 1980s that attempted to distinguish between the strategic cultures of the United States and the former U.S.S.R.205 The topics of strategic deterrence and arms control inspired these studies. Memoirs, more accessibility to historical decision-makers by interviewers, and the release of some classified sources from Communist archives have led to new work on Chinese and Soviet strategic culture.206 This has expanded the possibilities in this area and has provided some new historical insights. Some empirical research that runs iterations of and experiments with

Schelling's modified chess game or an appropriately devised game may develop an empirical base for comparison in deterrence decision-making.

Another possible direction for research is to assess the validity of the methodology and hypotheses presented here with other theorists, cultures and games. Does a maritime island nation, a sea power, such as England have a strategic culture that can be explored in the ways suggested here? In this case, how does the game method presented here work with theorists such as Julian Corbett or Liddell Hart?207

One possibility along this line is using the game lens of backgammon, one of the world's most ancient games, to explore some suggestive but preliminary interpretations of games in Arab lands by Faudi Khuri.208 Khuri has identified the absence of formal hierarchy in Arab culture as an underlying characteristic of Arab social relations and structures. The game of backgammon reflects these general cultural proclivities and may provide insights about Arab regional strategic culture.

In many respects, backgammon is an Arab cultural model of the cosmos.209 Some experts have argued that the various game board markings and pieces represent time—the seasons, day/night, months of the year, and hours in the day, etc.210 Most game experts would not classify backgammon as a game of strategy but would categorize it as a "race" game.211 There are three distinct styles of play in backgammon: (1) there is the running game which is a full speed ahead race to the end of the game; (2) there is the blocking game where a player attempts to block as many points in a row as possible to impede an opponent's progress; and (3) there is the back game strategy where a player tries to delay his forward progress to attack spaces where an opponent has only one piece, which forces the opponent's piece off the board temporarily.

In backgammon there are no kings, queens, horses, or soldiers--each player has fifteen checker-like pieces or "stones," which have the same inherent value as another at the beginning of play. According to Khuri, this corresponds to an interesting aspect of Arab political cultural that sees its leadership ambivalently. Arabs view their leaders more as "first among equals" than in a more structured "pyramidal" image of hierarchy and authority. Such a perception expresses itself with the popular, cultural idiomatic saying that, "There dwells an imam [holy man/religious leader] in every soul."212 In the game, stones occupying a space alone are in a weak position and in some ways reflect an organizing principle of Arab culture that sees vulnerability in isolation and fears being cut off from family or group. Conversely, two or more of your own stones on the same space establishes a strong position that reflects an Arab tendency to seek protection in groups.213

The object of the game is for each player to move his pieces toward his own side of the board and then "bear them off" the board. The first to do so wins the game. Pieces move around the board and then off the board by the throw of two dice. Chance is fundamentally important to the game and the player most familiar with two-dice probability and mathematics is at an advantage. In the Arab perspective, however, the chance displayed on the roll of the dice represents the "will of God." The Ayatollah Khumaini in Iran tabooed chess for backgammon, where he stated "the will of God is more visibly manifested."214 Metaphorically, a human group, as seen in Arab culture, is strong in a backgammon environment, but weak in a chess-like situation.

As we have outlined above, we can game a backgammon player against our other game players. At the least, we could test hypotheses concerned with uncertainty, chance, probabilities, and time (especially with backgammon

emphasizing speed and a shorter duration of play).

Once again, such a game analogy raises intriguing questions about a specific strategic culture--in this case an Arab/Middle East approach to strategic decision-making. Does the importance of chance in backgammon reflect a tendency for high risk-taking in Arab military operations? Given the need for superpower mediation in the Arab-Israeli conflicts since the Second World War and the long stalemate of the most recent Iran-Iraq war, do Arab strategic decision-makers put little emphasis on war termination planning because of a tendency to trust in "God's will" after first contact with the enemy? Does the acceptance of a more fatalistic outlook have a fundamental influence on strategic planning and actual execution of strategic choices? Is there a tendency to choose a plan then let it run its course with less flexibility, tinkering, or changes once combat begins?

Throughout our various iterations and experiments we should seek not so much the outcome of play, but rather, as Perla and Barrett have succinctly stated, "interpretations of the process by which the outcome occurs."[215] The objective of our study is not to find a strategy that usually wins our experimental games, but rather why players select strategies and how competing strategic proclivities, if they exist and are displayed, interact.

XI. CONCLUSIONS

Scott Boorman tells the story of four mice who lived in a barn.[216] Each was accustomed to view through a different knothole the cow who lived in the barn. One mouse saw only one side of the cow, another only its front and so on. These different views fueled arguments among the mice. Each claimed he had the correct description of the whole cow. The function of the game in this study was

to offer one knothole through which to view the war cow.

The intent of this paper was to explore thinking about war in games. This paper has tried to outline a theoretical method and suggest a methodological use of popular games of strategy. The popular games of strategy considered in this study, chess, poker, wei-ch'i, and "Diplomacy," provided an expanded heuristic device that enhanced our understanding of the fundamental theories of Sun Tzu, Jomini, Clausewitz, Mao, and Schelling. Rather than simply listing each theorist's precepts, a game analogy provided a way to integrate them into a coherent system of ideas. At another level, such popular games of strategy acted as an important mechanism that significantly informed cross-theory comparisons and, within limits, cross-cultural comparison. Finally, a popular game of strategy, in this case, "Diplomacy," formed part of a methodology to explore issues raised by the strategic culture debate.

A great number of issues were examined in our analysis of these five theorists. The majority of the topics rested on how certain games reflected a strong congruence to a classical theorist's ideas (and, thus, different philosophies of war). The most significant, general areas we explored were the structure (rules) of war, the availability and uses of information, the level of acceptance of uncertainty, assessments and levels of risk, and efforts aimed at deception.

Care in using a game as an analytic tool is especially important as American policy attention begins shifting to non-western regions, specifically Southwest Asia and the Asia-Pacific region. These areas of strategic interest have long been misunderstood by hasty western generalizations of the "other."217 One should combine any insights gained with game analysis with other forms of analysis to include historical study, the informed observations of a nation's current international and domestic behavior, and a mature appreciation for changing

social, political, and economic conditions in these regions. Alastair Johnston eloquently summarizes this concern for policy decisions that equally holds true for military strategy and operational planning:

> Done well, the careful analysis of strategic culture could help policy-makers establish more accurate and empathetic understandings of how different actors perceive the game being played, reducing uncertainty and other information problems in strategic choice. Done badly, the analysis of strategic culture could reinforce stereotypes about the strategic predispositions of other states and close off policy alternatives deemed inappropriate for dealing with local strategic cultures.218

The pace of change and the current post-Cold War strategic environment makes the lives of strategic and operational planners a great challenge, to say the least. In summary, this way of thinking about war does much to inform our own assessment of philosophies of war and our own strategic preferences as well as those of possible adversaries. If useful data from future experiments becomes available, this could go a long way to assist decision-makers and strategic and operational level planners in assessing their own and their opponent's strategies.

This study has been the opening round in a process envisioned to obtain a better understanding of the problem of strategy formulation. If this has been at all successful, then it will enjoin thought, debate, criticism, more research and a few more rounds in the future. In this way, more practical application with some level of confidence--for in war there is no absolute certitude--could become a realization.

NOTES

[1] Paul H. Nitze, "Atoms, Strategy and Policy," Foreign Affairs, January 1956, 195.

[2] Johan Huizinga, Homo Ludens: A Study of the Play Element in Culture (Boston: Beacon Press, 1950), 89.

[3] Elliot Avedon and Brian Sutton-Smith, The Study of Games (New York: John Wiley & Sons, Inc., 1971), 237, 435.

[4] John McDonald, Strategy in Poker, Business, and War (New York: W.W. Norton & Company, Inc., 1950), 55.

[5] Melvin Dresher, Games of Strategy: Theory and Applications (Englewood Cliffs, New Jersey: Prentice Hall, 1961), 1.

[6] John von Neumann and Oskar Morgenstern, Theory of Games and Economic Behavior, 2d ed. (Princeton: Princeton University Press, 1953).

[7] Marc Trachtenberg, History and Strategy (Princeton: Princeton University Press, 1991), 43-45.

[8] For a more recent and cogent development of Schelling's idea of cooperation in International Affairs see Robert Axelrod, The Evolution of Cooperation (New York: Basic Books, 1984).

[9] Thomas Schelling, The Strategy of Conflict (New York: Oxford University Press, 1963), 5; and Arms and Influence (New Haven: Yale University Press, 1966), 33, 215-220.

[10] Schelling, Arms and Influence, 92-95, 100-103, 116-125, 251; and The Strategy of Conflict, 105-107, 166.

[11] Garry D. Brewer and Martin Shubik, The War Game. A Critique of Military Problem Solving (Cambridge: Harvard University Press, 1979), 53.

[12] Arthur Scott Mobley, Jr., "Beyond The Black Box: An Assessment of Strategic War Gaming." Unpublished Thesis, U.S. Naval Post Graduate School, Monterey California, 1987, 6; Brewer and Shubik, The War Game, 8.

[13] Peter P. Perla and Raymond T. Barrett, "What Wargaming Is and Is Not," Naval War College Review, September-October 1985, 70.

[14] Avedon and Sutton-Smith, The Study of Games, 271; Brewer and Shubik, The War Game: A Critique of Military Problem Solving, 45-47.

[15] Nichols Palmer, The Comprehensive Guide to Board Wargaming (New York: Hippocrene Books, Inc., 1977), 16; Avedon and Sutton-Smith, The Study of Games, 271-273; Brewer and Shubik, The War Game, 45-57; Martin Shubik, Games for Society, Business, and War: Towards a Theory of Gaming (New York: American Elsevier Publishing Company, Inc., 1975), 279-281.

[16] Here I am indebted to Prof. Michael Handel, Strategy Department of The Naval War College, Newport, R.I.. Prof. Handel's vision and insistence, that I explore a methodology that went beyond a preliminary comparative effort with games that I had already developed, led to his suggestion that I devise a game that would allow me to pit the players of different games against each other to get at issues of strategic culture that my earlier work had raised.

[17] Robert Shaw, quoted in James Gleick, Chaos: Making a New Science (New York: Viking Penguin, 1987), 262.

[18] Martin L. Van Creveld, The Transformation of War (New York: The Free Press, 1991), 164-166, 218-219.

[19] My thoughts about the "rules" of war were informed initially by Michael Handel's discussion in Intelligence and Military Operations (Portland, Oregon: Frank Cass, 1990), 8; and from his comments on earlier drafts and discussions with me at various stages of this current study.

[20] Karl W. Deutsch, The Analysis of International Relations, 3rd ed. (Englewood Cliffs, New Jersey: Prentice Hall, 1988), 143.

[21] See N. G. L. Hammond, A History of Greece to 322 B.C., 3rd ed. (New York: Oxford University Press, 1986) and R. B. Strassler, ed., The Landmark Thycydides (New York: The Free Press, 1996).

[22] John Connell, cited in Michael Handel, ed., Intelligence and Military Operations, 7-8.

[23] William A. Owens, "The Emerging System of Systems," U.S. Naval Institute Proceedings , May 1995, 36-39; Gary W. Anderson and Perry C. Pierce, "Leaving The Technocratic Tunnel," Joint Force Quarterly, Winter 1995-1996, 69-75; Carl von Clausewitz, On War trans. and eds. Sir Michael Howard and Peter Paret (Princeton: Princeton University Press, 1976), 140.

[24] Anatol Rapoport, Fights, Games and Debates (Ann Arbor, Michigan: University of Michigan Press, 1960), 109-110.

[25] There are four different English translations available of Sun Tzu's classic. This study uses what has been the traditional standard: Sun Tzu, The Art of War , trans. Samuel B. Griffith (New York: Oxford University Press, 1971). .

[26] Arthur Waldron, "Sun Tzu," in The Reader's Companion to Military History, Robert Conley and Geoffrey Parker, eds. (N.Y.: Houghton Mifflin Co., 1996), 452.

[27] "Diplomacy" was originally published as a commercial game in 1961, but has been distributed by Avalon Hill Game Company for many years beginning in 1977. This game is based on shifting alliances between players representing different European powers at the turn of the century.

[28] Milan Vego, "Fundamentals of Operational Design," Naval War College Text #4104, Joint Military Operations Department, Newport, R.I., August 1996; Robin P. Swan, "The Pieces of a Military Chessboard--What is the Contemporary Significance of Jomini's Design of a Theater of Operations?" Unpublished Thesis,

U.S. Army School of Advanced Military Studies, Fort Leavenworth, Kansas, 1991.

[29] Baron Antoine-Henri de Jomini, "The Present Theory of War and Its Utility," in Jomini and His Summary of the Art of War ed. and with an introduction by J. D. Hittle (Harrisburg, PA: The Telegraph Press, 1947), 41.

[30] Hannes Adomeit, Soviet Risk-Taking and Crisis Behavior (London: George Allen & Unwin, 1982), 16.

[31] Clausewitz, On War, 85-86.

[32] The current and preferred spelling of Mao "Zedong" will be used in this study but references to citations that used earlier spellings, to reflect accuracy, will maintain those earlier spellings. Mao Tse-Tung, Selected Military Writings of Mao Tse-tung (hereafter: Selected Military Writings) (Peking, China: Foreign Language Press, 1967).

[33] For a concise study of Hans Delbrück's theories and his contribution to strategic thinking see Gordon Craig, "Delbrück: The Military Historian," in Makers of Modern Strategy, 326-353.

[34] Ibid., 174, 221, 377.

[35] Here I am superbly assisted by Scott Boorman, The Protracted Game: A Wei-ch'i Interpretation of Maoist Revolutionary Strategy (New York: Oxford University Press, 1969). In many ways, his was a path breaking approach that inspired my own investigation of the use of games. I depart from this earlier study in some of the issues I focus upon and in my interests for an overarching comparative approach.

[36] Trachtenberg, History and Strategy, 44.

[37] For publication information see note #9 of this present study.

[38] For a general review of the growing literature and a succinct outline of the various schools of thought see Alastar Iain Johnston, "Thinking About Strategic Culture," International Security, Spring 1995, 32-64.

[39] Jack Snyder, The Soviet Strategic Culture: Implications for Limited Nuclear Operations, Rand Report #R-2154-AF, Santa Monica, California, September 1977.

[40] Johnston, "Thinking About Strategic Culture," 34. For a similar definition see Ken Booth, "The Concept of Strategic Culture Affirmed," in Strategic Power: U.S.A/U.S.S.R. ed. Carl G. Jacobson (London: Macmillan, 1990), 121.

[41] Ken Booth, Strategy and Ethnocentrism (London: Croom Helm, 1979), 73.

[42] The earliest evidence indicates that the game originated in India sometime before the seventh or eighth century. The present form of the pieces and some of the modern rules date to the fifteeenth century. John Scarne, Scarne's Encyclopedia of Games (New York: Harper & Row, 1973), 498; Avedon and Sutton-Smith, The Study of Games, 272; H. J. R. Murray, Short History of Chess (London: Oxford University Press, 1963), 1.

[43] Scarne, <u>Scarne's Encyclopedia of Games</u>, 501.

[44] Dresher, <u>Games of Strategy</u>, 14-15; McDonald, <u>Strategy in Poker, Business, and War</u>, 59-60; Handel, <u>Intelligence and Military Operations</u>, 7.

[45] Edward Lasker, <u>Modern Chess Strategy With an Appendix on Go</u>, New Revised and Enlarged Edition (New York: David McKay Company, Inc., 1950).

[46] Schelling, <u>Strategy of Conflict</u>, 106.

[47] Schelling, <u>Arms and Influence</u>, 100.

[48] Ibid., 102.

[49] There are countless variations of poker. The basic game has some resemblance to European card games popular in the early to mid-nineteenth century, but was developed distinctly in the U.S. during the nineteenth century. Scarne, <u>Scarne's Encyclopedia of Games</u>, 46-51.

[50] Rapoport, <u>Fights Games and Debates</u>, 110; Scarne, <u>Scarne's Encyclopedia of Games</u>, 47.

[51] Von Neumann, quoted in McDonald, <u>Strategy in Poker, Business and War</u>, 71.

[52] There are many versions in Chinese history as to when wei-ch'i was first invented and who developed it. Most experts agree that as early as the the tenth century B.C. wei-ch'i was well known. Scarne, <u>Scarne's Encyclopedia of Games</u>, 533-532.

[53] Boorman, <u>The Protracted Game</u>, 79.

[54] Ibid., 534; Boorman, <u>The Protracted Game</u>, 12-17;

[55] Scarne, <u>Scarne's Encyclopedia of Games</u>, 535.

[56] Mark McNeilly, <u>Sun Tzu and the Art of Business</u> (New York: Oxford University Press, 1996), 23.

[57] Perla, <u>The Art of Wargaming</u> (Annapolis, Maryland: Naval Institute Press, 1990), 142.

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[207] My thanks to Professor John Maurer, U.S. Naval War College, Department of Strategy who raised this theoretical question to me about the strategic culture of a sea power in comparison to a continental power. His article, "The Anglo-German Naval Rivalry and Informal Arms Control, 1912-1914," Journal of Conflict Resolution, June 1992, 284-308, used the game theory construct of the "prisoner's dilemma" game to explore the validity of international relations cooperation theory in an historical test case. For some cogent thoughts about British strategic culture see Alan Macmillan, "Strategic Culture and National Ways in Warfare: The British Case," RUSI Journal, October 1995, 33-37.

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